UNITED STATES

TRANSPORTATION BY WATER: 1906.

UNITED STATES.

SCOPE OF THE CENSUS.

This report presents statistics for the year ending December 31, 1906, for all American documented and undocumented vessels or craft of 5 tons net register or over. It therefore includes all craft of the required ownership and tonnage operated on the coasts and inland waters of the United States, Porto Rico, and the Hawaiian Islands, or between the ports of these and other countries. It also includes a few craft of American ownership that did not visit American ports during 1906, but does not include craft operating exclusively in the waters of the Philippine Islands, or between such waters and ports of foreign countries.

All classes of floating equipment were included except those owned by the Federal Government, those engaged in fishing, stationary wharf boats, and house boats used largely for residence purposes. Craft engaged in fishing were omitted because they form a part of the fishing industry of the country, and are to be included in the census of that industry which is provided for by section 7 of the act of Congress of March 6, 1902.

Vessels that were in operation during all or a portion of the year are classed as "active craft" as distinguished from those idle during the entire year. The statistics for these two classes are given separately.

While a census of water transportation should cover all classes of floating equipment, manifestly it would be impracticable, and of no economic value, to include rowboats, canoes, small sailboats, launches, etc.; 5 tons was therefore fixed as the minimum size of the craft to be included.

As a basis for the fieldwork the names of vessels together with the addresses of the managing owners of all documented craft were obtained from the records of the Bureau of Navigation, Department of Commerce and Labor, and those of the undocumented craft from the offices of the collectors and surveyors of customs. The entire country was divided into districts, and the agents were instructed to make a thorough canvass of their respective districts and, in addition to accounting for all the names on the lists, to make careful inquiry and secure reports for all other craft that should be included in the census.

The managing owners of a number of the craft of American ownership have no established office on land at which census data can be obtained, and as such craft move from port to port they frequently can not be reached through the mail. While the agents made every effort to secure reports for them, some were evidently omitted from the canvass; a few unimportant craft operating on small lakes, difficult of access, were also omitted. In the aggregate, however, these omissions were insignificant, and it is believed that the canvass was as thorough as possible under existing conditions.

Each managing owner was required to report the class of the craft operated, the gross and net tonnage, character of materials from which constructed, motive power, waters in which operated, terminal points of regular routes, commercial value of the craft and of the land property incident to its operation, gross income for the year, persons employed and amount paid in salaries and wages, number of passengers carried, and the quantity of the different varieties of freight shipped from and delivered at the principal ports. This section of the report contains a summary of the statistics for most of the features developed by the schedule, but the details for each division are presented in the separate sections.

In deference to the wishes of the shipowners, and in view of the fact that it was impracticable to obtain definite information concerning the operating expenses for all of the craft included in the census, no inquiries were made concerning expenses other than the amounts paid in salaries and wages. The primary object of the census, moreover, was to show the magnitude of the transportation interests on the different waters of the United States, and it was believed that this could be most readily accomplished by a simple schedule applicable to all classes of craft. The report contains, therefore, no information in regard to profits, cost of carrying passengers or freight, or other features depending upon statistics of expenditures.

COMPARISON WITH PRIOR CENSUSES.

When possible the statistics for 1906 have been compared with those for prior censuses. The census of 1880 contains statistics and general information for the "merchant steam marine" and also the approxi-

mate number, tonnage, and value of sailing vessels, canal boats, barges, and flat and wharf boats. The statistics were compiled largely from the records of the Register of the Treasury and of the offices of local United States inspectors, and from other official sources. No organized canvass of all classes of craft was made as in 1906 and, with the exception of those for steam vessels, the totals are so incomplete that they should not be placed in comparison with those for 1889[1] or 1906.

At the census of 1889 an attempt was made to secure reports from all classes of craft of over 5 tons burden, but it appears to have been difficult at that time to apply a uniform schedule and instructions to all sections of the country. For example, fishing vessels were included in the statistics for the Pacific coast, but were excluded from the totals for other sections of the country; pile drivers, sand dredges, sand boats, and fire boats were reported for some sections of the country but not for others. A considerable proportion of the craft included in the census of 1889 failed also to make report of income, employees, wages, passengers or freight, and estimates for these items were prepared in the Census Office. At the census of 1889 no attempt was made to secure information respecting vessel interests upon state waters, while at the census of 1906 all waters were covered.

While it is probable that a more thorough enumeration was made at the census of 1906 than at that of 1889, it is known that some craft were omitted from both censuses. The extent of these omissions can not be determined, but a comparison of the reports for the census of 1906 with the records of the Bureau of Navigation establishes the fact that the documented, enrolled, and licensed vessels omitted from the census of 1906 are of small tonnage and that their exclusion has no appreciable effect on the totals.

The report for the census of 1889 does not include returns for Alaska. In 1889 very little shipping was carried on entirely within Alaskan waters, and the majority of the craft operating between Alaska and ports in California, Washington, or Oregon were credited to the states and not to Alaska. Under these conditions, to show the increase, it is proper to compare the totals for the shipping on the Pacific coast including Alaska in 1906 with those for the Pacific coast in 1889.

The statistics for Porto Rico and the Hawaiian Islands were not included in the census of 1889; they are now presented separately and not included in the totals for the United States. The totals for 1889 and 1906 have been made further comparable by including as far as possible the same class of craft in each of the three groups shown in Table 1.

[1] The Eleventh Census of Transportation by Water, which is known as the census of 1890, covered the year ending December 31, 1889, and to avoid confusion is referred to in this report as the census of that year.

TABLE 1.—ALL VESSELS AND CRAFT: 1906 AND 1889.

[Vessels operating as connecting links in railroad systems did not uniformly report the tonnage of freight carried or income for the year. In addition to the craft reported in this table there were 1,762 vessels, with a gross tonnage of 179,326, reported as idle in 1906, and 1,490, with a gross tonnage of 233,639, reported as idle, untraceable, or lost prior to or during 1889.]

	TOTAL.			STEAM.[1]			SAIL.[2]			UNRIGGED.		
	1906	1889[3]	Per cent of increase.	1906	1889	Per cent of increase.	1906	1889	Per cent of increase.	1906	1889	Per cent of increase.
Number of vessels	37,321	30,485	22.4	9,927	5,603	77.2	7,131	7,945	[4]10.2	20,263	16,937	19.6
Gross tonnage	12,893,429	8,359,135	54.2	4,059,521	1,710,073	137.4	1,704,277	1,675,706	1.7	7,129,631	4,973,356	43.4
Value of vessels	$507,973,121	$206,992,352	145.4	$386,772,727	$131,567,427	194.0	$56,206,145	$53,192,972	5.7	$64,994,249	$22,231,953	192.3
Gross income	$294,854,532	[5]$161,994,066	82.0	$262,167,342	[5]$113,715,700	130.5	$32,687,190	$48,278,366	[4]32.3	([6])	([6])	.....
Number of employees[7]	140,929	[8]113,870	23.8	115,525	[8]70,347	64.2	25,404	43,523	[4]41.6	([6])	([6])	.....
Wages[7]	$71,636,521	[8]$41,482,812	72.7	$61,265,474	[8]$28,521,220	114.8	$10,371,047	$12,961,592	[4]20.0	([6])	([6])	.....
Number of passengers carried	366,825,663	198,992,438	84.3	366,800,748	198,992,438	84.3	24,915	.....	.....	([6])	([6])	.....
Freight carried, including harbor work (net tons)[9]	[10]265,545,804	129,851,658	104.5	.....	.....	.....	.....	.....	.....	.....	.....	.....

[1] Includes all craft propelled by machinery.
[2] Includes schooner barges, scow schooners, etc.
[3] Includes 52 craft with a gross tonnage of 2,553, valued at $75,360, for which no report was made for income, employees, wages, number of passengers and freight carried.
[4] Decrease.
[5] Exclusive of income for canal boats.
[6] Included in statistics for steam vessels.
[7] Does not include employees or wages for yachts on the Atlantic coast in 1889.
[8] Exclusive of employees on canal boats.
[9] Statistics for freight not directly comparable; for explanation, see page 33.
[10] Includes 2,003,453 net tons of bunker coal.

SUMMARY OF STATISTICS.

The increase in the shipping interests of the country has been due to the increase in steam vessels and unrigged craft. During the period of seventeen years the tonnage and value of the steam vessels more than doubled and there were also large increases for the unrigged craft, but the tonnage and value of sailing vessels increased only 1.7 and 5.7 per cent, respectively, while a considerable decrease occurred in their number and in the extent of their operations.

From the report of the Bureau of Navigation it appears that there were 24,898 vessels, with a tonnage of 6,647,007, registered, enrolled, and licensed in the United States on June 30, 1906, exclusive of Porto Rico, Hawaii, and the Philippines. The census covers 19,586 documented, registered, enrolled, or licensed craft, of which 18,199, with 6,362,215 tonnage, were

in operation all or a portion of the year, and 1,387, with a tonnage of 131,138, were idle during the entire year. Of the remaining 5,312 documented craft, some were engaged in the fishing industry, others had been destroyed or abandoned, and still others could not be located by the agents of the Census Office.

Craft of all classes, whether active or idle, exclusive of vessels owned by the Federal Government, numbered 31,975 at the census of 1889 and had a combined tonnage of 8,592,774, while at the census of 1906 they numbered 39,083 and had a combined tonnage of 13,072,755. These figures represent an increase in number of 7,108, or 22.2 per cent, and an increase in tonnage of 4,479,981, or 52.1 per cent.

TABLE 2.—ALL VESSELS AND CRAFT, BY OCCUPATION, AND PER CENT IN EACH GROUP: 1906.

OCCUPATION.	VESSELS.		TONNAGE.		VALUE OF VESSELS.		GROSS INCOME.		EMPLOYEES.		WAGES.	
	Number.	Per cent.	Gross tons.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Number.	Per cent.	Amount.	Per cent.
United States	37,321	100.0	12,893,429	100.0	$507,973,121	100.0	$294,854,532	100.0	140,929	100.0	$71,636,521	100.0
Commercial vessels	32,674	87.5	12,736,529	98.8	471,268,723	92.8	291,418,998	98.8	130,315	92.5	67,013,594	93.5
Freight and passenger	8,796	23.6	5,084,450	39.4	337,633,845	66.5	193,565,044	65.6	84,853	60.2	40,220,763	56.1
Ferryboats	536	1.4	261,073	2.0	29,578,380	5.8	17,291,073	5.9	4,519	3.2	3,537,180	4.9
Tugs and other towing vessels	3,079	8.3	261,375	2.0	39,062,249	7.7	43,943,528	14.9	20,870	14.8	12,494,685	17.4
Unrigged craft	20,263	54.3	7,129,631	55.3	64,994,249	12.8	[1] 36,619,553	12.4	[1] 20,073	14.2	[1] 10,760,966	15.0
Yachts	3,770	10.1	106,430	0.8	28,451,114	5.6	28,578	[2]	7,807	5.5	2,848,728	4.0
All other	877	2.3	50,470	0.4	8,253,284	1.6	3,406,956	1.2	2,807	2.0	1,774,199	2.5

[1] In many cases the income, employees, and wages for unrigged craft were not reported separately but were included in the reports for towing vessels.
[2] Less than one-tenth of 1 per cent.

The majority of the craft and by far the largest proportion of the tonnage are engaged directly or indirectly in the transportation of freight and passengers. This class of service is represented not only by the steam and sail freight and passenger vessels, but by ferries, towing vessels, and unrigged craft, designated in the above table as "commercial vessels;" their tonnage was 12,736,529, and represents 98.8 per cent of the total for all craft. While a large part of the American tonnage is identified with the movement of freight and passengers, only 8,796 steam and sail vessels were classed as "regular freight and passenger," and the tonnage of this class formed only 39.4 per cent of the total. But the commercial value and amount of business done by these vessels was of much greater relative importance, the percentage of value represented by them amounting to as much as 66.5 of the value of all craft. They earned 65.6 per cent of the gross income, gave employment to 60.2 per cent of the persons required to operate the 37,321 vessels and craft included in the census, and paid 56.1 per cent of the total wages.

DIAGRAM 1.—*Gross tonnage of all vessels, by classes: 1906 and 1889.*

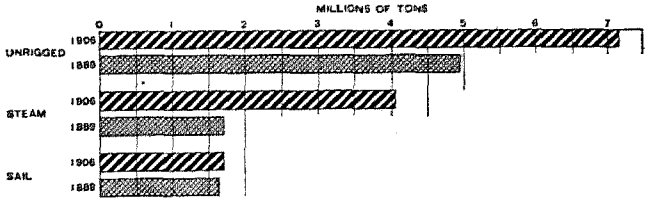
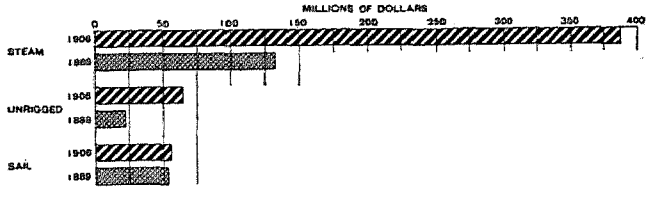


DIAGRAM 2.—*Value of all vessels, by classes: 1906 and 1889.*



The unrigged class represents more than half of the number and tonnage engaged in the freight movement, but their value forms a very much smaller proportion of the total. The group includes some dredges, pile drivers, and similar craft, the tonnage

of which, however, represents only a small proportion of the total tonnage of unrigged vessels.

UNDOCUMENTED CRAFT.

In analyzing the census data it is interesting to know the number and tonnage of undocumented craft included. Such information is given in Table 3.

TABLE 3.—*Number and gross tonnage of active and idle undocumented craft included in the census: 1906.*

CLASS.	Number of vessels.	Gross tonnage.
Aggregate	19,497	6,579,402
Active	19,122	6,531,214
Steam	1,250	46,705
Sail	533	5,355
Unrigged	17,339	6,479,154
Idle	375	48,188
Steam	107	7,689
Sail	33	559
Unrigged	235	39,940

The undocumented craft, consisting principally of yachts, harbor craft, canal boats, and barges operating on the rivers and other inland waters, form a considerable proportion of the number and tonnage of all vessels included in the census. As it is not compulsory for such craft to have documents, it is probable that the only official record concerning them is contained in the Census reports.

STEAM VESSELS.

The total for steam vessels includes all craft of every description propelled by steam, gasoline, electricity, or any motive power utilized by machinery; also craft equipped for propulsion by both machinery and sails. This includes vessels carrying freight, passengers, or both; tugs and towing vessels; towboats working with dredges, pile drivers, lighters, etc., and regular seagoing tugs; ferryboats which make regular or irregular trips between two designated points which are so close that the service is classed as "ferriage" rather than freight or passenger; and vessels operated for the pleasure of their owners and not for profit. In addition to these general classes the total includes steam vessels engaged primarily in taking out fishing parties, wreckers, pile drivers, dredges, dredge tenders, mail boats, news boats, pilot boats, floating grain elevators, dispatch boats, patrol boats, and other boats engaged in work incident to but not directly allied to the freight and passenger movement. The miscellaneous character of the craft included makes it necessary to classify the total as far as possible by the class of work in which the vessels were engaged during the census year, and this is done in Table 4.

TABLE 4.—*Steam vessels, by occupation, with per cent each class is of total: 1906.*

OCCUPATION.	Number of vessels.	Per cent.	Gross tonnage.	Per cent.	Value of vessels.	Per cent.
Total	9,927	100.0	4,059,521	100.0	$386,772,727	100.0
Freight and passenger	3,615	36.4	3,411,588	84.0	286,218,089	74.0
Tugs and other towing vessels	3,079	31.0	261,375	6.4	39,062,240	10.1
Ferryboats	536	5.4	261,073	6.4	29,578,380	7.6
Yachts	2,176	21.9	82,275	2.0	24,281,861	6.3
All other	521	5.2	43,210	1.1	7,632,148	2.0

Of the 9,927 steam vessels included in the census of 1906 only a little more than one-third were regular freight and passenger steamers, but their tonnage formed 84 per cent of the gross tonnage and their value almost three-fourths of the total value reported for all steam craft. In consideration of the large quantities of freight moved by tugs and other towing vessels they should be accepted as a part of the freight equipment. By combining the two groups it is found that they represent more than 90 per cent of the gross tonnage and more than 84 per cent of the value of the entire fleet of steam vessels. The tonnage of the ferryboats is about equal to that of the tugs and other towing vessels, but they are a distinct class of craft, for which the statistics are shown separately in Table 14. While a large number of yachts were propelled by the use of machinery, their tonnage and value form but a small proportion of the total. The group of "all other" includes steam dredges, pile drivers, etc.

The dependence of the unrigged craft upon steam vessels for power and the consequent close relation between the two kinds of craft make it impossible to arrive at a satisfactory separation of the income, employees, and wages for the two classes, and therefore they are combined in Table 5, which is introduced to show the increase in the steam craft operating on the various waters of the United States.

TABLE 5.—STEAM VESSELS, BY DIVISIONS, WITH PER CENT OF INCREASE: 1906 AND 1889.

[The statistics of gross income, number of employees, and wages include the totals for unrigged craft.]

DIVISION.	Census.	Number of vessels.	Gross tonnage.	Value of vessels.	Gross income.	Number of employees.	Wages.
Total	1906	9,927	4,059,521	$386,772,727	$262,167,342	115,525	$61,265,474
	1889	5,603	1,710,073	131,567,427	113,715,700	70,347	28,521,220
Per cent of increase		77.2	137.4	194.0	130.5	64.2	114.8
Atlantic coast and Gulf of Mexico	1906	5,413	1,457,894	193,926,327	139,717,909	58,470	31,664,945
	1889	2,536	741,770	65,518,640	57,034,216	[1] 30,528	[1] 13,284,325
Per cent of increase		113.4	96.5	196.0	145.0	91.5	138.4
Pacific coast (including Alaska)	1906	1,066	518,107	60,440,145	40,220,388	15,661	10,230,828
	1889	465	160,293	14,767,355	12,959,914	6,682	3,567,226
Per cent of increase		129.2	223.2	309.3	210.3	134.4	186.8
Great Lakes and St. Lawrence river	1906	1,676	1,915,786	116,983,812	60,933,528	22,658	12,318,174
	1889	1,467	595,813	40,868,824	27,223,207	16,968	6,294,188
Per cent of increase		14.2	221.5	186.2	123.8	33.5	95.7
Mississippi river and its tributaries	1906	1,435	146,227	13,196,770	17,342,038	15,016	5,692,117
	1889	972	192,974	9,622,608	16,331,872	15,951	5,337,185
Per cent of increase		47.6	[2] 24.2	37.1	6.2	[2] 5.9	6.7
All other inland waters	1906	337	21,507	2,225,673	3,953,479	3,720	1,359,410
	1889	163	19,223	790,000	166,491	218	38,296
Per cent of increase		106.7	11.9	181.7	([3])	([3])	([3])

[1] The employees and wages for yachts were not reported.
[2] Decrease.
[3] Income, number of employees, and wages were not reported for canal boats at the census of 1889, and therefore the percentage of increase is not given.

There has been a considerable increase in the number and magnitude of the operations of the steam craft on all waters except the Mississippi river and its tributaries, where the tonnage of the vessels and the number of persons employed have actually decreased. There has been an increase in the size of the steam vessels operating on the Great Lakes and the Pacific coast.

The greatest absolute increase, except in the gross tonnage, is shown for the vessels operating on the Atlantic coast and Gulf of Mexico; in tonnage the largest increase occurred on the Great Lakes, and is due principally to the large steel vessels recently constructed to carry grain and ore. There was also a large increase in the steam shipping on the Pacific coast, the percentages being larger than those for any of the other divisions. The increase in the income, employees, and wages for "all other inland waters" is due principally to the inclusion of the unrigged craft, for which it is probable a more thorough enumeration was made in 1906. But as no income, employees, or wages were reported for canal boats in 1889, the figures are not comparable and the percentages of increase are omitted.

The limitation of the census to vessels of 5 tons or over results in the exclusion of a large number of steam, gasoline, and electric launches engaged in the regular freight and passenger traffic on the lakes, bays, and rivers of the country. The number of these small vessels has increased very rapidly during recent years, and their aggregate annual business has now assumed considerable proportions.

The relative importance of the steam shipping in each of the five divisions at the censuses of 1889 and 1906 is shown in Table 6.

TABLE 6.—STEAM VESSELS, PER CENT IN EACH DIVISION: 1906 AND 1889.

DIVISION.	Census.	Number of vessels.	Gross tonnage.	Value of vessels.	Gross income.	Number of employees.	Wages.
Total	1906	100.0	100.0	100.0	100.0	100.0	100.0
	1889	100.0	100.0	100.0	100.0	100.0	100.0
Atlantic coast and Gulf of Mexico	1906	54.5	35.9	50.1	53.3	50.6	51.7
	1889	45.3	43.4	49.8	50.2	43.4	46.6
Pacific coast (including Alaska)	1906	10.7	12.8	15.6	15.3	13.6	16.7
	1889	8.3	9.4	11.2	11.4	9.5	12.5
Great Lakes and St. Lawrence river	1906	16.9	47.2	30.2	23.2	19.6	20.1
	1889	26.2	34.8	31.1	23.9	24.1	22.1
Mississippi river and its tributaries	1906	14.5	3.6	3.4	6.6	13.0	9.3
	1889	17.3	11.3	7.3	14.4	22.7	18.7
All other inland waters	1906	3.4	0.5	0.6	1.5	3.2	2.2
	1889	2.9	1.1	0.6	0.1	0.3	0.1

With the exception of tonnage, the relative importance of the steam vessels operating on the Atlantic and Gulf coasts has increased since 1889 until these craft now represent more than half of this class of American shipping. There has been also an increase in the relative importance of this class of vessels on

the Pacific coast, but the proportions for the Mississippi river and its tributaries have decreased. The steam vessels operating on other inland waters form such a small proportion of the total that changes in their relative importance are of slight significance. The tonnage of the steam vessels on the Great Lakes has increased much more rapidly than the number and is now in excess of that for the Atlantic and Gulf coasts, but the value and volume of business, as measured by the income, employees, and wages, were much less than on the Atlantic coast.

UNRIGGED CRAFT.

This class includes all craft that have no motive power of their own—all, in fact, that can not be classed as either steam or sail, such as barges, flatboats, lighters, scows, dredges, derricks, hoisting barges, floating elevators, and also canal boats, irrespective of the waters in which they were operated during 1906. The number and tonnage of the unrigged craft exceed the totals for steam and sail, and their value is in excess of that reported for the sailing class. Since unrigged vessels are largely dependent upon steam vessels for motive power, and since the same crew frequently operates both the towing vessel and the tow, it is impossible to segregate the income so as to show the amount derived from the operation of the steam vessel as distinct from the barge or scow. For this reason the statistics of income, employees, wages, etc., are included in comparative tables with those for the steam vessels. The unrigged craft are a very important factor in the movement of freight, especially on the inland waters and in and around the principal harbors. The majority of them are built of wood, but the use of iron and steel as material during recent years has added greatly to their value and durability, and accounts in part for the greater increase in value than in number and tonnage.

TABLE 7.—*Unrigged vessels, by occupation, with per cent each class is of total: 1906.*

OCCUPATION.	Number of vessels.	Per cent.	Gross tonnage.	Per cent.	Value of vessels.	Per cent.
Total	20,263	100.0	7,129,631	100.0	$64,994,249	100.0
Canal boats	2,237	11.0	303,581	4.3	2,952,197	4.5
All other	18,026	89.0	6,826,050	95.7	62,042,052	95.5

Canal boats now form a comparatively small proportion of the fleet of unrigged craft, and their relative importance has been decreasing.

The increase in the variety of work in which unrigged craft can be employed—their use in the shipment of coal and other heavy freight between coast ports, as well as on the lakes, rivers, and canals, and between points within harbors—has caused great activity in their construction. Barges, lighters, and similar craft can be used most economically for this class of work, and, as shown in Table 2, their number and tonnage now form a considerable proportion of the total American shipping. They are used most extensively on the Atlantic coast and the Mississippi river and its tributaries, the greatest increase in the number and tonnage being reported for these waters. Large increases are also shown for those operating on the Pacific coast and the Great Lakes. The decrease in those reported for "all other inland waters" is due primarily to the decrease in the canal boats.

TABLE 8.—*Unrigged vessels, by divisions, with per cent of increase: 1906 and 1889.*

DIVISION.	Census.	Number of vessels.	Gross tonnage.	Value of vessels.
Total	1906	20,263	7,129,631	$64,994,249
	1889	16,937	4,973,356	22,231,053
Per cent of increase		19.6	43.4	192.3
Atlantic coast and Gulf of Mexico	1906	8,699	2,260,622	41,658,685
	1889	3,425	623,483	7,837,440
Per cent of increase		154.0	262.6	431.5
Pacific coast (including Alaska)	1906	805	154,297	4,649,317
	1889	489	63,356	825,345
Per cent of increase		64.6	143.5	463.3
Great Lakes and St. Lawrence river	1906	783	211,506	6,686,557
	1889	308	139,400	3,472,500
Per cent of increase		154.2	51.7	92.6
Mississippi river and its tributaries	1906	8,187	4,265,740	9,655,372
	1889	6,328	3,171,636	4,784,554
Per cent of increase		29.4	34.5	101.8
All other inland waters	1906	1,789	237,466	2,344,318
	1889	6,387	975,481	5,312,114
Per cent of increase		[1] 72.0	[1] 75.7	[1] 55.9

[1] Decrease.

The larger portion of the freight received at the boroughs of Manhattan and Bronx and at Brooklyn, N. Y., is delivered by water craft, and a considerable proportion comes from surround g places by means of lighters or barges. Large numbers of these craft were operated in and around New York harbor during 1906, and as they are in constant movement from place to place, probably some were missed in the enumeration. They do virtually an express and drayage business for the harbor, and it was almost as difficult to ascertain the quantity of freight handled on them as it would have been to secure similar data for the wagons and other vehicles moving freight between points on land. Lightering freight is a cheaper means of handling cargoes than the transportation on trucks, as large consignments can be handled on a single lighter, thus keeping the shipment together, and the entire amount can be delivered at one time and discharged directly into the vessel, thus avoiding extra handling. Steamers will not receive cargo after a fixed time, and it is a great advantage to get the entire shipment alongside at once, instead of delivering it on numerous trucks. In some instances, too, large steamers do not come to the wharves, but are loaded and unloaded by lighters, which obtain and deliver the freight at points most convenient to the consignors and consignees. These craft are thus indispensable to the

delivery and shipment of freight in many harbors. Estimates for the freight handled by these harbor craft aggregated 88,026,046 tons for the entire country, exclusive of the Great Lakes, in 1906.

The relative importance of the unrigged craft operating in the different divisions is shown in Table 9.

TABLE 9.—*Unrigged vessels, per cent in each division: 1906 and 1889.*

DIVISION.	Census.	Number of vessels.	Gross tonnage.	Value of vessels.
Total	1906	100.0	100.0	100.0
	1889	100.0	100.0	100.0
Atlantic coast and Gulf of Mexico	1906	42.9	31.7	64.1
	1889	20.2	12.5	35.8
Pacific coast (including Alaska)	1906	4.0	2.2	7.2
	1889	2.9	1.3	3.7
Great Lakes and St. Lawrence river	1906	3.9	3.0	10.3
	1889	1.8	2.8	15.6
Mississippi river and its tributaries	1906	40.4	59.8	14.9
	1889	37.4	63.8	21.5
All other inland waters	1906	8.8	3.3	3.6
	1889	37.7	19.6	23.9

The number, tonnage, and value of the unrigged craft on the Atlantic and Gulf coasts and the Mississippi river and its tributaries greatly predominate over those of the other divisions. The greatest increase in relative importance is shown for the Atlantic and Gulf coasts. Although the tonnage on the Mississippi has actually increased more rapidly than the number of craft, larger barges now being used for the transportation of coal, the importance of the tonnage as compared with that in the other sections has decreased. There has been also an increase in the number and tonnage of these vessels on the Pacific coast and the Great Lakes, but the greater increase for other divisions has resulted in but a slight advance in their relative importance.

SAILING VESSELS.

This class includes all craft propelled exclusively by the use of sails, irrespective of their employment, and embraces the large vessels engaged in regular traffic, pleasure craft, yachts, pilot boats, etc.

TABLE 10.—*Sail vessels, by occupation, with per cent each class is of total: 1906.*

OCCUPATION.	Number of vessels.	Per cent.	Gross tonnage.	Per cent.	Value of vessels.	Per cent.
Total	7,131	100.0	1,704,277	100.0	$56,206,145	100.0
Freight and passenger	5,181	72.7	1,672,862	98.2	51,415,756	91.5
Yachts	1,594	22.4	24,155	1.4	4,169,253	7.4
All other	356	5.0	7,260	0.4	621,136	1.1

The regular freight vessels represent 98.2 per cent of the tonnage of the sailing fleet and 91.5 per cent of its value. The 356 sailing craft included in the total of "all other" were engaged in a great variety of work, such as carrying fishing, gunning, and pleasure parties; wrecking; lightering; police duty; and removing garbage. While there were almost 2,000 yachts and miscellaneous sailing craft of 5 tons or over, their aggregate tonnage amounts to less than 2 per cent of the total for sailing vessels and their value less than 9 per cent of the total value.

TABLE 11.—SAIL VESSELS, BY DIVISIONS, WITH PER CENT OF INCREASE: 1906 AND 1889.[1]

DIVISION.	Census.	Number of vessels.	Gross tonnage.	Value of vessels.	Gross income.	Number of employees.	Wages.
Total	1906	7,131	1,704,277	$56,206,145	$32,687,190	25,404	$10,371,047
	1889	7,945	1,675,706	53,192,972	48,278,366	43,523	12,961,592
Per cent of increase		[2] 10.3	1.7	5.7	[2] 32.3	[2] 41.6	[2] 20.0
Atlantic coast and Gulf of Mexico	1906	5,920	1,132,905	37,520,903	20,042,015	18,654	6,687,314
	1889	6,277	1,293,192	42,685,982	33,113,416	[3] 33,097	[3] 8,838,774
Per cent of increase		[2] 5.7	[2] 12.4	[2] 12.1	[2] 39.5	[2] 43.6	[2] 24.3
Pacific coast (including Alaska)	1906	666	305,283	11,533,171	8,299,751	4,481	2,719,571
	1889	681	195,508	6,231,340	6,912,824	4,633	2,313,195
Per cent of increase		[2] 2.2	56.1	85.1	20.1	[2] 3.3	17.6
Great Lakes and St. Lawrence river	1906	531	265,571	7,135,271	4,341,174	2,258	962,542
	1889	962	185,081	4,238,850	8,240,645	5,758	1,804,003
Per cent of increase		[2] 44.8	43.5	68.3	[2] 47.3	[2] 60.8	[2] 46.7
All other inland waters	1906	14	518	16,800	4,250	11	1,620
	1889	25	1,925	36,800	11,481	35	5,620
Per cent of increase		[2] 44.0	[2] 73.1	[2] 54.3	[2] 63.0	[2] 68.6	[2] 71.2

[1] Including schooner barges, etc. [2] Decrease. [3] The employees and wages for yachts were not reported.

The total for sailing vessels shows a decrease in every item except tonnage and value, both of which increased slightly. The only exception to this general decrease is reported for the Pacific coast, where there was a considerable increase in the tonnage, value, and business of the vessels, though the number decreased from 681 in 1889 to 666 in 1906. No sail vessels were reported for the Mississippi river or its tributaries, and those reported for the small lakes and other inland waters are comparatively unimportant.

TABLE 12.—SAIL VESSELS, PER CENT IN EACH DIVISION: 1906 AND 1889.

DIVISION.	Census.	Number of vessels.	Gross tonnage.	Value of vessels.	Gross income.	Number of employees.	Wages.
Total	1906	100.0	100.0	100.0	100.0	100.0	100.0
	1889	100.0	100.0	100.0	100.0	100.0	100.0
Atlantic coast and Gulf of Mexico	1906	83.0	66.5	66.8	61.3	73.4	64.5
	1889	79.0	77.2	80.2	68.6	76.0	68.2
Pacific coast (including Alaska)	1906	9.3	17.9	20.5	25.4	17.6	26.2
	1889	8.6	11.7	11.7	14.3	10.6	17.8
Great Lakes and St. Lawrence river	1906	7.4	15.6	12.7	13.3	8.9	9.3
	1889	12.1	11.0	8.0	17.1	13.2	13.9
All other inland waters	1906	0.2	(1)	(1)	(1)	(1)	(1)
	1889	0.3	0.1	0.1	(1)	0.1	(1)

[1] Less than one-tenth of 1 per cent.

The proportional number of sail vessels on the Atlantic and Gulf coasts has increased since 1889, but the proportion of the tonnage and value, and of the amount of business done by vessels operating on these waters, has decreased. This relative decrease is due in part to the increase on the Pacific coast, as the relative number and importance, with the exception of the tonnage and value, have decreased also on the Great Lakes.

SCHOONER BARGES.

The sailing vessels include craft built primarily to be towed, although equipped with sails which are used only to assist in steering. These craft, known as "schooner barges," are thus described in the report of the Commissioner of Navigation for 1905: "A seagoing schooner barge is a vessel usually towed from port to port, but rigged with masts and furnished with sails, so that if in emergency she breaks adrift from the towing steamer, she may not be helpless at sea. Nearly all of the schooner barges before 1890 were square-rigged vessels or schooners which had outlived their usefulness as such and were dismantled and converted into barges. Shortly before 1890, and to a considerable extent since, such schooner barges have been specially constructed, some of them with steel hulls. The practice of cutting down square-rigged vessels and schooners into barges still continues." The schooner barges might be classed as "unrigged craft," but the Census has followed the practice of the Bureau of Navigation and included them in the group of sail vessels. The statistics for them are shown separately in Table 13, so that they may be combined with other classes if desired.

TABLE 13.—*Schooner barges: 1906.*

	Total.	Atlantic coast and Gulf of Mexico.	Pacific coast.	Great Lakes and St. Lawrence river.
Number of vessels	515	389	9	117
Gross tonnage	492,697	323,618	9,077	160,002
Value of vessels	$13,263,423	$7,497,833	$491,706	$5,273,884
Number of employees	2,300	1,458	74	768
Wages	$1,115,136	$721,911	$53,024	$340,201

The classification of craft as sail or unrigged depends upon the designation given by the managing owners, and it is probable that some equipped with a limited amount of sail, to be used in case of emergency, were reported as "unrigged." It was impracticable to make the classification of the craft depend upon the character or amount of sail, and the line of demarcation, therefore, between the sail and the unrigged is not as clearly defined as may be desirable, but as a rule only those craft that had no sail or other motive power were included in the group of "unrigged."

FERRYBOATS.

Vessels employed in ferry service form an important part of the water transportation system of the country. This class includes self-propelling vessels having a regular route between two neighboring points, carrying passengers, teams, etc. It also includes a certain class of railroad car ferries on which trains are transported between two points on the railroad line. It does not include car floats dependent upon towing vessels, nor a certain class of small ferryboats operated by human power that are frequently found on the small rivers and streams of the country.

For the Great Lakes and all other inland waters at the census of 1889 the gross income, number of employees, and amount of wages paid were not reported separately for ferryboats; therefore it is impossible to make comparisons of such data for those districts. The other items, however, are sufficient to indicate the great increase in the ferry traffic in all the divisions shown in the table with the exception of the Mississippi river, where there was an actual and proportional decrease in the number of employees and wages paid and a relatively small increase in the remaining items.

Ferry passengers form more than 90 per cent of all passengers reported for the census year 1906, and they are the principal source of income for ferryboats, but as shown in Table 14 these vessels derive considerable income from the carriage of freight and from other sources. The income of this character is especially large in proportion to the total for the Pacific coast, the Great Lakes, and the Mississippi river, where a

large number of railroad car ferries are operated and income is derived from other sources than the passenger service. In many cases, particularly on the Mississippi river and its tributaries, the ferrying of wagons, teams, and cattle is largely in excess of the passenger business.

TABLE 14.—FERRYBOATS, BY DIVISIONS, WITH PER CENT OF INCREASE: 1906 AND 1889.

DIVISION.	Census.	Number of vessels.	Gross tonnage.	Value of vessels.	GROSS INCOME.			Number of employees.	Wages.	Number of passengers carried.
					Total.	Passengers.	All other sources.			
Total	1906	536	261,073	$29,578,380	$17,291,073	$10,414,106	$6,876,967	4,519	$3,537,180	330,737,639
	1889	456	146,104	10,442,750	(1)	(1)	(1)	(1)	(1)	182,033,991
Per cent of increase		17.5	78.7	183.2						81.7
Atlantic coast and Gulf of Mexico	1906	270	162,834	19,970,466	10,571,534	7,386,913	3,184,621	2,388	2,098,540	272,596,670
	1889	214	98,174	7,907,700	5,392,969			1,710	1,276,847	158,644,012
Per cent of increase		26.2	65.9	152.5	96.0			39.6	64.4	71.8
Pacific coast (including Alaska)	1906	47	40,171	4,315,522	4,208,430	2,037,580	2,170,850	759	708,777	39,532,354
	1889	38	24,630	979,300	994,476			478	395,157	14,291,859
Per cent of increase		23.7	63.1	340.7	323.2			58.8	79.4	176.6
Great Lakes and St. Lawrence river	1906	48	35,581	3,429,532	922,838	456,856	465,982	656	308,156	8,264,482
	1889	40	4,702	498,000	(1)	(1)	(1)	(1)	(1)	623,474
Per cent of increase		20.0	656.7	588.7						1,225.6
Mississippi river and its tributaries	1906	166	22,180	1,776,360	1,553,121	498,747	1,054,374	699	413,553	10,022,612
	1889	163	18,593	1,056,250	1,190,817			893	456,676	8,474,046
Per cent of increase		1.8	19.3	68.2	29.8			[2]21.7	[2]9.5	18.3
All other inland waters	1906	5	307	86,500	35,150	34,010	1,140	17	8,154	321,521
	1889	1	5	1,500	(1)	(1)	(1)	(1)	(1)	(1)
Per cent of increase		400.0	6,040.0	5,666.7						

[1] Not reported separately for ferryboats in 1889.

[2] Decrease.

As shown in Table 15, the ferry traffic is largely concentrated in the neighborhood of large centers of population, where different sections of the community are separated from each other by rivers or estuaries which are not spanned by bridges or by a sufficient number of bridges to meet the demand for intercommunication.

TABLE 15.—FERRYBOATS, BY DISTRICTS, WITH PER CENT IN EACH DISTRICT: 1906.

DISTRICT.	Number of vessels.	Gross tonnage.	Value of vessels.	Gross income.	Number of employees.	Wages.	Number of passengers carried.
Total	536	261,073	$29,578,380	$17,291,073	4,519	$3,537,180	330,737,639
	100.0	100.0	100.0	100.0	100.0	100.0	100.0
New York	152	129,690	17,098,077	8,423,119	1,622	1,578,839	208,684,123
Per cent of total	28.4	49.7	57.8	48.7	35.9	44.6	63.1
Philadelphia	25	10,306	918,807	1,009,295	217	195,560	30,616,853
Per cent of total	4.7	3.9	3.1	5.8	4.8	5.5	9.3
New Orleans	11	1,598	214,000	154,415	65	25,467	3,524,470
Per cent of total	2.1	0.6	0.7	0.9	1.4	0.7	1.1
San Francisco	26	35,273	3,415,498	3,924,040	636	598,277	34,905,908
Per cent of total	4.9	13.5	11.5	22.7	14.1	16.9	10.6
Detroit	17	15,649	1,944,882	351,490	308	176,169	6,612,216
Per cent of total	3.2	6.0	6.6	2.0	6.8	5.0	2.0
All other districts	305	68,557	5,986,456	3,428,714	1,671	962,868	46,394,009
Per cent of total	56.9	26.3	20.2	19.8	37.0	27.2	14.0

The statistics for each of the five cities named in the table include all ferries operated in the neighborhood, with the city as the central point, regardless of the ownership of the lines. For example, under New York are included all ferries running between the different subdivisions of the greater city and between New York and the cities in New Jersey. Some of these ferries are owned by the city and others by steam railroad or regular ferry companies.

In addition to the cities named, Boston, Mass., Norfolk, Va., Portland, Oreg., and Seattle, Wash., are important points in ferry traffic, but the statistics for them are included in the total for "all other districts."

Ferry traffic on the Atlantic coast and the Gulf of Mexico exceeds that in all other districts combined, and in like manner the ferry traffic in New York harbor is much greater than in any other locality in the United States, comprising for several items nearly one-half and for passengers carried and value of vessels considerably more than one-half of the total. San Francisco is next in importance to New York, with Philadelphia, Detroit, and New Orleans following in the order named.

Municipal ferries.—Reports were received from 29 ferryboats owned and operated by city governments, and the statistics for them are included in Table 14 and shown separately in Table 16.

TABLE 16.—MUNICIPAL FERRIES: 1906.

DISTRICT.	Number of vessels.	Gross tonnage.	Value of vessels.	GROSS INCOME.		Number of employees.	Wages.	Number of passengers carried.
				Passengers.	All other sources.			
Total	29	20,238	$2,503,447	$621,280	$263,672	290	$458,129	20,945,055
New York harbor	16	14,829	2,253,000	557,437	220,905	188	360,159	12,521,847
Boston harbor	7	4,448	209,347	62,373	41,037	72	70,720	7,242,808
Small points on Connecticut river	2	60	4,100	970	1,230	4	2,150	19,400
Portland, Oreg.	3	857	35,000	.....	.....	25	24,900	1,156,000
Wabasha, Minn.	1	44	2,000	500	500	1	200	5,000

Of the 16 municipal ferries reported for New York harbor, 7 were operated in connection with penal or eleemosynary institutions and 9 were public ferries between different parts of the city on which regular fare was charged. The boats operated by the city of Boston and those on the Connecticut river were also public ferries on which fare was charged; the ferries operated between points in Portland, Oreg., were owned by Multnomah county and operated free of charge; and the ferry at Wabasha, Minn., was operated across the Mississippi river and fare was charged.

YACHTS.

This class includes all craft operated primarily for the pleasure and convenience of the owners. Although they are not operated for profit and take no part in the freight and passenger movement, they are considered as forming a part of the floating equipment of the country that should be included in the census. The great increase in the number of these craft and the difficulty of obtaining satisfactory information concerning them required special arrangements to secure the census reports. The names of the documented yachts and the names and addresses of the owners were obtained from the records of the Bureau of Navigation and those of the others from the officials of the various yacht clubs. These lists were used in mailing schedules and for the guidance of the field agents, but as a considerable proportion of the yachts changed ownership during the year, it was frequently impossible to locate the vessels or to find any person who could give information concerning their tonnage or value. It is probable, therefore, that the statistics in Table 17 do not represent all the yachts of 5 tons or over that were in existence during 1906.

While yachts are, as a rule, of small tonnage, the average for the 3,770 included in the census for 1906 was slightly more than 28 gross tons per vessel; for the steam craft it was 38 tons; and for the sail, 15 tons. The average value per vessel was $7,547; for steam, $11,159; and for sail, $2,616. The steam yachts include the gasoline and electric launches and represent 57.7 per cent of the total number of vessels included in this class. Yachts propelled by machinery are the only kind reported for the Mississippi river and its tributaries, and they also predominate on all the other waters except the Pacific coast, where there was a larger number of sail craft.

TABLE 17.—*Yachts—number, gross tonnage, and value, by divisions: 1906.*

DIVISION AND CLASS.	Number of vessels.	Gross tonnage.	Value of vessels.
Total	3,770	106,430	$28,451,114
Steam	2,176	82,275	24,281,861
Sail	1,594	24,155	4,169,253
Atlantic coast and Gulf of Mexico	2,935	91,507	25,066,082
Steam	1,577	70,461	21,290,339
Sail	1,358	21,046	3,775,743
Pacific coast (including Alaska)	170	2,524	468,910
Steam	66	1,065	294,800
Sail	104	1,459	174,110
Great Lakes and St. Lawrence river	358	7,668	1,877,850
Steam	236	6,210	1,673,000
Sail	122	1,458	204,850
Mississippi river and its tributaries	222	3,255	563,400
Steam	222	3,255	563,400
Sail	.....	.....	.....
Canals and other inland waters of New York state	41	810	276,450
Steam	32	641	262,700
Sail	9	169	13,750
All other inland waters	44	666	198,422
Steam	43	643	197,622
Sail	1	23	800

Of the total number of yachts, 3,439, or 91.2 per cent, were owned by individuals; 246, or 6.5 per cent, by firms; 64, or 1.7 per cent, by corporations; and 21, or six-tenths of 1 per cent, by miscellaneous forms of organizations.

RAILWAY SHIPPING.

The interests of steam railroads in American shipping are represented by car ferry lines, which form, usually, a short connecting link between two points of a railway system; by ferryboats, tugboats, lighters, barges, scows, dredges, and other floating equipment owned and operated directly by the railroad; or by transportation companies having a separate corporate organization, but as a rule subsidiary to the railroad companies which own the whole or a majority of their stock.

The companies that had a separate organization and kept separate accounts of their operations could make

complete reports to the Census Office. These companies, however, usually operate steamships between distant points, or regular ferryboats for general passenger and freight traffic, the statistics for which are included in those for freight and passenger vessels. Reasonably complete information was reported in regard to the harbor craft of railroad companies for all items except the income. This could not be given with any degree of accuracy, because it was derived from the operations of the railroads themselves, and it was impracticable to furnish an estimate of the amounts earned by the water craft. Car ferries form connecting links in railroad lines and transport for short distances whole trains of cars, both freight and passenger; the passengers are undisturbed in their journey and there is no unloading and reloading of freight. In such cases, while the number, tonnage, and value of these vessels form a part of the water transportation facilities of the country, the passengers and freight carried on them form an element in both railroad and water transportation. It was impossible therefore, in many instances, to obtain information of the business done by craft of this kind, but the statistics given in Table 18 will at least indicate the size of the fleet engaged in this service.

TABLE 18.—*Craft operated in connection with steam railroads: 1906.*

	Total.	Steam.	Unrigged.
Number of vessels	1,464	282	1,182
Gross tonnage	575,596	113,386	462,210
Value of vessels	$20,960,301	$12,738,171	$8,222,130
Number of employees	5,092	3,596	1,496
Wages	$3,655,977	$2,665,118	$990,859
Number of passengers carried	37,455,512	37,355,512	100,000

The totals in this table represent the craft engaged in the transportation of freight and passengers, or freight and passenger cars as connecting links in railway systems exclusively, freight vessels operated for the purpose of extending freight business from railroad terminals to adjacent ports without additional charge, vessels used in connection with construction work for railroad companies, and craft owned by the companies and engaged in lightering the freight incident to the operations of the road. The table does not include public ferries operated by railroad companies for foot passengers and teams, or vessels owned by railroad companies but operated as regular freight and passenger lines.

GOVERNMENT VESSELS.

As previously explained, this report does not include statistics for vessels owned by the Federal Government; it does, however, include craft owned by state and city governments, the statistics for which are shown separately in Table 19.

TABLE 19.—*Vessels owned and operated by state and city governments: 1906.*

	Total.	Steam.	Sail.	Unrigged.
Number of vessels	315	143	4	168
Gross tonnage	62,739	36,099	132	26,508
Value of vessels	$8,040,696	$6,803,468	$10,380	$1,226,848
Gross income	[1] $3,177,554	$1,136,594	.....	[1] $2,040,960
Number of employees	1,884	1,150	12	722
Wages	$2,073,028	$1,308,332	$5,470	$759,226
Number of passengers carried	21,344,209	21,344,209	.....	.....

[1] Includes value of work done by craft of the Department of Docks and Ferries, New York city.

The totals in this table include municipal ferryboats, fire boats, police patrol boats, oyster patrol boats, scavenger and garbage boats, quarantine boats, ambulance boats, boats for the protection of fish and game, canal inspection and repair boats, dredges and dredge tenders, steam derricks, pilot boats, pile drivers, ice boats, ice breakers, boats used for scientific investigation, and those used in connection with eleemosynary institutions.

FISHING CRAFT.

Vessels employed in the fishing industry are not included in the census of water transportation. They should nevertheless receive consideration as forming an important element of American shipping, and certain statistics for them collected by the Bureau of Fisheries in connection with other information for fisheries are summarized in Table 20.

TABLE 20.—VESSELS ENGAGED IN THE COMMERCIAL FISHERIES OF THE UNITED STATES AND THE PERSONS EMPLOYED THEREON.[1]

	United States.	Atlantic coast and Gulf of Mexico, 1902 and 1904.	Pacific coast, 1904.	Alaska, 1905.	Mississippi river and its tributaries, 1903.	Great Lakes, 1903.	All other inland waters, 1900 to 1903.
Fishing vessels:							
Number	4,915	4,631	87	3	.....	194	.....
Tonnage (net)	97,367	86,076	7,637	148	.....	3,506	.....
Value	$8,975,626	$7,813,776	$506,400	$21,000	.....	$634,450	.....
Value of outfit	$3,534,027	$3,088,728	$289,897	$8,000	.....	$147,402	.....
Transporting vessels:							
Number	1,995	1,671	139	167	5	12	1
Tonnage (net)	98,765	29,968	2,745	65,552	138	340	22
Value	$5,077,926	$1,795,119	$477,600	$2,735,807	$11,400	$50,000	$2,000
Value of outfit	$354,444	$278,235	$68,055	[2]	[2]	$7,854	$300
Persons employed:							
On fishing vessels	32,079	29,663	1,205	.....	.....	1,211	.....
On transporting vessels	6,212	5,166	401	583	19	38	5

[1] Compiled from the reports of the Bureau of Fisheries.

[2] Not reported.

As the statistics for the various sections of the country cover different years, the totals for the United States do not represent the vessels employed in the fishing industry at one definitely stated time. The totals for the Atlantic coast and Gulf of Mexico are a combination of the figures published separately by the Bureau of Fisheries for the New England states and the South Atlantic and Gulf states for the year 1902, and for the Middle Atlantic states for 1904.

The "persons employed" shown in the table are those employed on fishing vessels and in transporting the catch to market and the supplies to the fishing grounds. In addition, 110,484 persons were employed in shore and boat fisheries and 66,756 on shore in canneries and in various other capacities.

The 6,910 vessels reported as fishing and transporting do not include the small boats and launches employed in the industry; these numbered 82,443 and were valued at $5,656,721.

The "outfit" for which the cost or value is shown for both classes of vessels consists of all supplies necessary in the industry except fishing apparatus, including fuel, provisions, preservatives, dories, etc. The value of the fishing apparatus, which includes seines, nets, lobster pots, dredges, etc., amounted to $8,551,808 for all fisheries in the United States.

While the statistics do not represent all craft engaged in the industry throughout the United States during any given year, they convey an idea of the number, tonnage, and value of the vessels employed in fishing, in transporting the catch, and in other work incident to the industry.

GEOGRAPHIC DIVISIONS.

Different conditions control the development of the shipping on the various navigable waters of the United States. The style of craft operating on the Mississippi and its tributaries could not be employed with advantage on the coasts; the vessels operating on the Great Lakes are designed especially to obtain the best results from the peculiar service in which they are to be employed on these waters. Land transportation, the location of manufacturing enterprises, the development of agricultural pursuits, the deterioration of harbor facilities, the decrease in depth of channels, and various other conditions may have greater effect in some districts than in others on the volume of freight moved. Although it is impracticable to localize the information so as to show exactly the effect of the various factors controlling the increase or decrease on each of the rivers, lakes, or canals, and in different sections of the coast, wherever possible the statistics have been presented for the five divisions shown in Table 21.

TABLE 21.—ALL CLASSES OF VESSELS AND CRAFT, BY DIVISIONS, WITH PER CENT OF INCREASE: 1906 AND 1889.

[Vessels operating as connecting links in railroad systems did not uniformly report the tonnage of freight carried or income for the year. In addition to the craft reported in this table there were 1,762 vessels with a gross tonnage of 179,326 reported as idle in 1906, and 1,490 with a gross tonnage of 233,639 reported as idle, untraceable, or lost prior to or during 1889.]

DIVISION.	Census.	Number of vessels.	Gross tonnage.	Value of vessels.	Gross income.	Number of employees.	Wages.	Number of passengers carried.
Total	1906	37,321	12,893,429	$507,973,121	$294,854,532	140,929	$71,636,521	366,825,663
	1889	30,485	8,359,135	206,992,352	161,994,066	113,870	41,482,812	198,992,438
Per cent of increase		22.4	54.2	145.4	82.0	23.8	72.7	84.3
Atlantic coast and Gulf of Mexico[1]	1906	20,032	4,851,421	273,105,915	159,759,924	77,124	38,352,259	292,555,416
	1889	12,238	2,658,445	116,042,062	90,147,632	[2] 63,625	[3] 22,123,099	170,225,458
Per cent of increase		63.7	82.5	135.4	77.2	21.2	73.4	71.9
Pacific coast (including Alaska)	1906	2,537	977,687	76,622,633	48,520,139	20,142	12,950,399	44,189,971
	1889	1,635	419,157	21,824,040	19,872,738	11,315	5,880,421	15,672,093
Per cent of increase		55.2	133.3	251.1	144.2	78.0	120.2	182.0
Great Lakes and St. Lawrence river	1906	2,990	2,392,863	130,805,640	65,274,702	24,916	13,280,716	14,080,146
	1889	2,737	920,294	48,580,174	35,463,852	22,726	8,098,191	2,235,993
Per cent of increase		9.2	160.0	169.3	84.1	9.6	64.0	529.7
Mississippi river and its tributaries	1906	9,622	4,411,967	22,852,142	17,342,038	15,016	5,692,117	14,122,241
	1889	7,300	3,364,510	14,407,162	16,331,872	15,951	5,337,185	10,853,894
Per cent of increase		31.8	31.1	58.5	6.2	[3] 5.9	6.7	30.1
All other inland waters	1906	2,140	259,491	4,586,791	3,957,729	3,731	1,361,030	1,877,889
	1889	6,575	996,629	6,138,914	[4] 177,972	[4] 253	[4] 43,916	
Per cent of increase		[3] 67.5	[3] 74.0	[3] 25.3				

[1] Total for 1889 includes 52 craft with a gross tonnage of 2,553, valued at $75,360, for which no report was made for income, employees, wages, passengers, and freight carried.
[2] Does not include employees or wages for yachts.
[3] Decrease.
[4] Income, employees, and wages were not reported for canal boats at the census of 1889, and therefore the per cent of increase is not given.

Vessels were classified according to the waters on which they operated principally in 1906, and not according to the port at which they were documented, which was the rule in 1889. The coasts and tributary rivers up to what is generally known as the "head of navigation" are included in the "Atlantic coast and Gulf of Mexico" and the "Pacific coast." The Mississippi river is an exception, the entire river system being included under "Mississippi river and its tributaries." The division "all other inland waters" includes vessels operating on waters not otherwise classified.

All classes of craft are covered by this table and the statistics represent the entire floating equipment included in the census for each of the five divisions. By

far the largest proportion of American shipping operates on the Atlantic coast and the Gulf of Mexico, and the greatest increases in number, tonnage, value, and the other items shown in the table are reported for these waters. The next greatest number and tonnage are shown for the Mississippi river and its tributaries. The total for these rivers includes the figures for a large number of coal barges and similar craft, which increase the total number and tonnage out of proportion to the value and amount of business done; the smaller number and tonnage reported for the Great Lakes and St. Lawrence river represent a much greater value, and their gross earnings for the census of 1906 was almost four times as great as the income of the vessels on the Mississippi. The largest percentage of increase in all items covered by the table, except number of vessels, gross tonnage, and passengers carried, is shown for the shipping on the Pacific coast.

While the comparison of the data for the two census years indicates an increase in the total for all varieties of shipping on the Mississippi and its tributaries, the increase is not as great as in the other divisions, and there has been apparently a decrease in the number of employees. A consideration of the statistics given in Tables 5 to 17 for the different classes of vessels in each division permits a better understanding of the general totals for the divisions.

DIAGRAM 3.—*Gross tonnage of all vessels: 1906.*

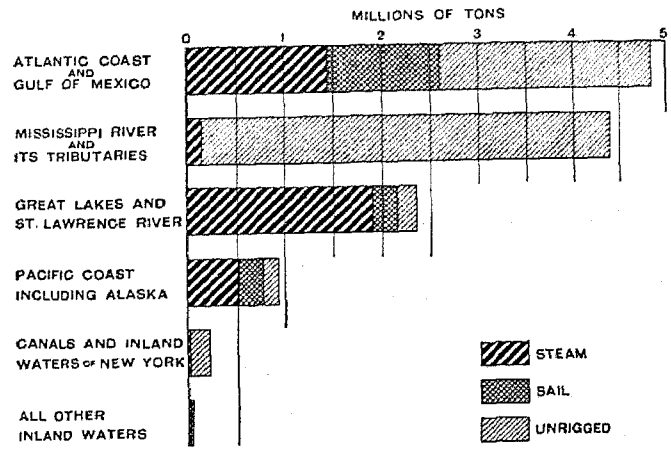
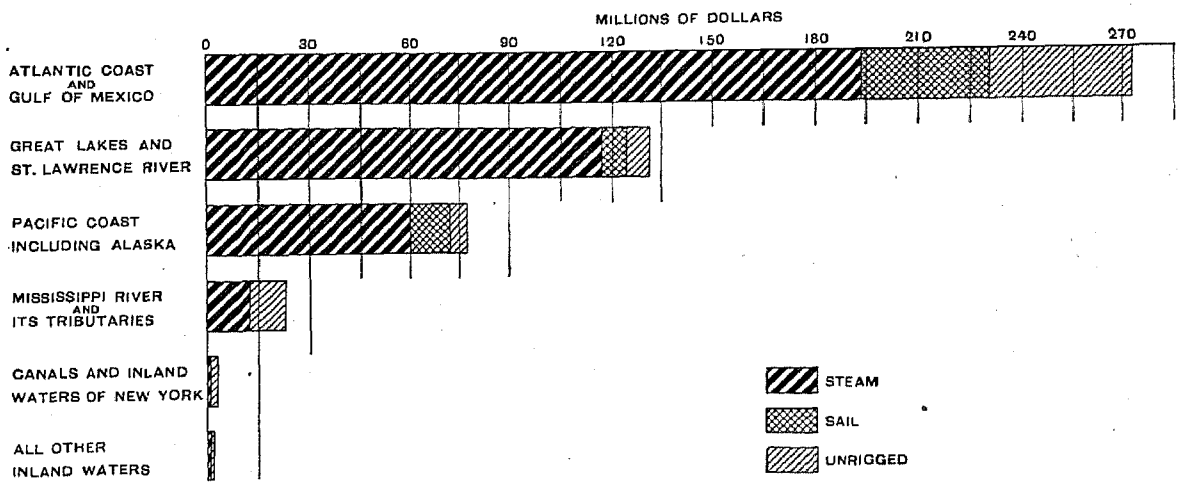


DIAGRAM 4.—VALUE OF ALL VESSELS: 1906.



OWNERSHIP OF VESSELS.

To show the relative importance of the vessels operating under the different forms of ownership statistics are presented for the following classes: (1) Individual, (2) firm, (3) incorporated company, and (4) "miscellaneous," which embraces craft owned by pilot and cooperative associations, those operated by local governments, etc.

At the census of 1889 the statistics of ownership were limited to the number, tonnage, and value of the vessels operating on the Atlantic coast and Gulf of Mexico and on the Pacific coast. The totals were shown for individual ownership, joint-stock companies, and corporations. But as it can not be determined definitely whether vessels owned by firms were included with those owned by joint-stock companies or with those owned by individuals, in comparing the statistics for these two divisions data are given only for corporate companies and for all other forms of ownership combined.

TABLE 22.—OWNERSHIP FOR STEAM AND SAIL VESSELS ON THE ATLANTIC COAST AND GULF OF MEXICO AND THE PACIFIC COAST: 1906 AND 1889.

DIVISION, CLASS, AND OWNERSHIP.	VESSELS.				TONNAGE.				VALUE OF VESSELS.			
	Number.		Per cent of total.		Gross tons.		Per cent of total.		Amount.		Per cent of total.	
	1906	1889	1906	1889	1906	1889	1906	1889	1906	1889	1906	1889
Atlantic coast and Gulf of Mexico: Steam and sail	11,333	8,813	100.0	100.0	2,590,799	2,034,962	100.0	100.0	$231,447,230	$108,204,622	100.0	100.0
Incorporated company	2,630	1,019	23.2	11.6	1,644,044	571,181	63.5	28.1	167,929,716	43,376,790	72.6	40.1
All other forms of ownership	8,703	7,794	76.8	88.4	946,755	1,463,781	36.5	71.9	63,517,514	64,827,832	27.4	59.9
Steam	5,413	2,536	100.0	100.0	1,457,894	741,770	100.0	100.0	193,926,327	65,518,640	100.0	100.0
Incorporated company	2,072	917	38.3	36.2	1,244,283	545,683	85.3	73.6	155,819,420	42,892,910	80.3	65.5
All other forms of ownership	3,341	1,619	61.7	63.8	213,611	196,087	14.7	26.4	38,106,907	22,625,730	19.7	34.5
Sail	5,920	6,277	100.0	100.0	1,132,905	1,293,192	100.0	100.0	37,520,903	42,685,982	100.0	100.0
Incorporated company	558	102	9.4	1.6	399,761	25,498	35.3	2.0	12,110,296	483,880	32.3	1.1
All other forms of ownership	5,362	6,175	90.6	98.4	733,144	1,267,694	64.7	98.0	25,410,607	42,202,102	67.7	98.9
Pacific coast (including Alaska): Steam and sail	1,732	1,146	100.0	100.0	823,390	355,801	100.0	100.0	71,973,316	20,998,695	100.0	100.0
Incorporated company	796	281	46.0	24.5	637,571	164,398	77.4	46.2	61,426,691	12,313,110	85.3	58.6
All other forms of ownership	936	865	54.0	75.5	185,819	191,403	22.6	53.8	10,546,625	8,685,585	14.7	41.4
Steam	1,066	465	100.0	100.0	518,107	160,293	100.0	100.0	60,440,145	14,767,355	100.0	100.0
Incorporated company	609	221	57.1	47.5	477,815	127,498	92.2	79.5	55,560,485	11,575,605	91.9	78.4
All other forms of ownership	457	244	42.9	52.5	40,292	32,795	7.8	20.5	4,879,660	3,191,750	8.1	21.6
Sail	666	681	100.0	100.0	305,283	195,508	100.0	100.0	11,533,171	6,231,340	100.0	100.0
Incorporated company	187	60	28.1	8.8	159,756	36,900	52.3	18.9	5,866,206	737,505	50.9	11.8
All other forms of ownership	479	621	71.9	91.2	145,527	158,608	47.7	81.1	5,666,965	5,493,835	49.1	88.2

The table indicates that at the census of 1906 vessels operated by corporations constituted a much larger proportion of the total number than at the census of 1889, and corresponding increases in relative importance are shown for their tonnage and value. In 1889 corporations controlled 28.1 per cent of the tonnage operating on the Atlantic coast and 46.2 per cent of that operating on the Pacific coast; in 1906 these proportions had increased to 63.5 and 77.4 per cent, respectively. Of the number, tonnage, and value of steam vessels, the proportion under corporation control was larger at both censuses than the corresponding proportions for sailing craft, although the table shows that there has been a large increase in the percentage of sail vessels operating under this form of ownership. Small craft are, as a rule, owned by individuals or firms, and large numbers of them operate on the Atlantic coast, where vessels owned by corporations represent a considerably smaller proportion of the total than on the Pacific coast.

TABLE 23.—*Number, gross tonnage, and value of vessels, by character of ownership, with per cent in each class: 1906.*

OWNERSHIP.	VESSELS.		TONNAGE.		VALUE OF VESSELS.	
	Number.	Per cent.	Gross tons.	Per cent.	Amount.	Per cent.
Total	37,321	100.0	12,893,429	100.0	$507,973,121	100.0
Individual	12,944	34.7	1,462,818	11.3	65,833,525	13.0
Firm	4,169	11.2	929,311	7.2	28,807,734	5.7
Incorporated company	19,729	52.9	10,375,681	80.5	402,419,557	79.2
Miscellaneous	479	1.3	125,619	1.0	10,912,305	2.1

Individual ownership.—The average tonnage of the 12,944 vessels owned by individuals was 113 as compared with an average of 223 tons for those owned by firms, and 526 tons for the vessels operated by corporations. Many of the yachts are of greater value per ton than other classes of craft, with the result that this group represents a larger percentage of the total value than of the total tonnage. Comparatively few individual owners, however, operate very large craft, so that while they still control more than a third of the vessels, the tonnage and value of these craft are but slightly more than one-tenth of the totals for all craft.

Firm.—This class includes all vessels operated by firms and partnerships, whether general or limited, and all those operated by shareholders, though there may be no formal articles of partnership. While the average tonnage of the 4,169 vessels included in the group is considerably larger than the average for "individuals," the total number, tonnage, and value is much less; and with the exception of the miscellaneous group, this form of ownership represents the smallest proportion of the floating equipment.

Incorporated company.—The principal industries of the country owe their great development very largely to the influence of corporations. The advantages of this form of organization for the conduct of large enterprises were early recognized by the shipping interests and are now well established. The large capital required for the construction and maintenance

of the lines of freight and passenger steamers operating on the coasts and inland waters was most readily secured through the corporate form of ownership, which enables numerous individuals to contribute, and renders it possible to secure the advantage of the economies made practicable by the concentration of management and the continuity of existence that are incident to the corporation. Of the 37,321 vessels included in the census of 1906, corporations owned more than one-half, representing more than three-fourths both of the tonnage and of the value of the merchant marine; of all steam vessels, they controlled 42.6 per cent, representing 87.6 per cent of the gross steam tonnage; and of the regular freight and passenger vessels, they controlled 56.8 per cent of the number with 91 per cent of the tonnage. Steam yachts in fact are the only class of steam craft in which corporations do not own the larger portion of the gross tonnage.

Sailing vessels are more evenly distributed among the different forms of ownership, but corporations own 43.6 per cent of the tonnage of the regular freight sailing vessels, while of the unrigged tonnage, they control 85.4 per cent.

TABLE 24.—NUMBER AND GROSS TONNAGE OF VESSELS, BY CHARACTER OF OWNERSHIP AND BY OCCUPATION: 1906.

CLASS AND OCCUPATION.	TOTAL.		INDIVIDUAL.		FIRM.		INCORPORATED COMPANY.		MISCELLANEOUS.	
	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.
Total	37,321	12,893,429	12,944	1,462,818	4,169	929,311	19,729	10,375,681	479	125,619
Steam	9,927	4,059,521	4,359	316,219	1,141	145,326	4,224	3,555,040	203	42,936
Freight and passenger	3,615	3,411,588	1,101	189,707	437	113,611	2,055	3,104,291	22	3,979
Tugs and other towing vessels	3,079	261,375	902	37,079	488	25,286	1,644	192,313	45	6,697
Ferryboats	536	261,073	115	5,423	39	1,752	352	233,630	30	20,268
Yachts	2,176	82,275	1,978	78,188	130	2,415	55	1,500	13	172
All other	521	43,210	263	5,822	47	2,262	118	23,306	93	11,820
Sail	7,131	1,704,277	4,772	483,859	1,403	435,756	857	729,784	99	54,878
Freight and passenger	5,181	1,672,862	3,028	457,877	1,252	433,412	840	728,714	61	52,859
Yachts	1,594	24,155	1,461	22,540	116	1,310	9	161	8	144
All other	356	7,260	283	3,442	35	1,034	8	909	30	1,875
Unrigged	20,263	7,129,631	3,813	662,740	1,625	348,229	14,648	6,090,857	177	27,805

Miscellaneous.—This class includes all craft that could not be assigned to any of the other forms of ownership. They represent less than 1 per cent of the total tonnage, and are not as a rule connected with the movement of freight and passengers. The majority of them are owned by local governments and cooperative associations.

CONSTRUCTION.

Iron was first used in marine construction about 1800, when a small canal boat was built in England with wooden frames and planked with boiler iron, and this marked the advent of the metal shipbuilding of the present day. In 1821, at Horsley, England, was built the first iron steamboat, a small vessel intended for river service. For nearly a decade iron construction was confined to vessels intended for river and inland service, but about the year 1838 iron sailing vessels of from 200 to 300 tons were being built for ocean voyages. So far as England is concerned this period marks the increase in iron construction and the decrease in that from wood.[1]

The first record of an iron vessel in the United States is in 1825, when a small iron steamboat was launched on the Susquehanna river, in Pennsylvania.[1] The exact dates of the launching of other iron vessels are uncertain, but the abundance and cheapness of wood have retarded metal shipbuilding in this country.

[1] Tenth Census. Report on Shipbuilding Industry.

TABLE 25.—*Shipbuilding—value of new construction: 1880 to 1905.*[1]

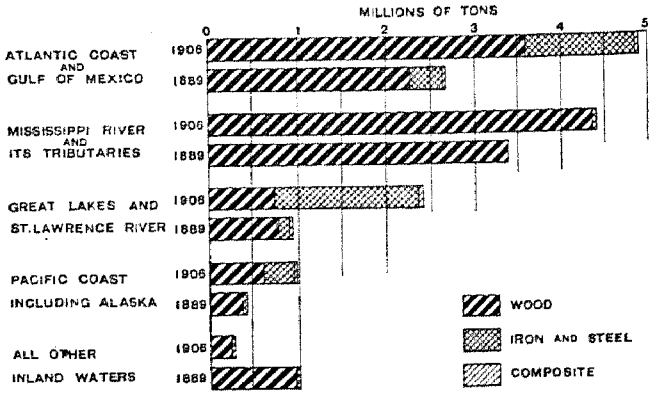
CENSUS.	Total.	Iron and steel.	Wood.	Per cent of increase, iron and steel.	Per cent of increase, wood.
1905	$53,119,935	$43,395,704	$9,724,231	70.5	[2] 5.6
Per cent		81.7	18.3		
1900	35,750,473	25,454,943	10,295,530	120.4	[2] 20.4
Per cent		71.2	28.8		
1890	24,483,995	11,550,846	12,933,149	126.7	[2] 8.5
Per cent		47.2	52.8		
1880	19,225,714	5,096,293	14,129,421		
Per cent		26.5	73.5		

[1] Census of Manufactures, 1905, Shipbuilding. [2] Decrease.

The statistics in this table were obtained from the Census reports on manufactures, and as the report of 1880 was the first at which the construction of iron and steel and of wooden vessels were reported separately, comparative figures begin with that date. The percentages shown in this table bring out very clearly the advance in iron and steel construction and the decrease in wooden shipbuilding. During the period covered there was a constant increase in construction of the former class from a value of $5,096,293, representing 26.5 per cent of the total value of new construction reported in 1880, to $43,395,704, or 81.7 per cent, in 1905. On the other hand, wooden construction, which was valued at $14,129,421, or 73.5

per cent of the total in 1880, fell to $9,724,231, or 18.3 per cent, in 1905.

DIAGRAM 5.—*Gross tonnage of all vessels, by character of construction: 1906 and 1889.*



The decrease in wood as a material of construction is due largely to the superior advantages possessed by iron and steel (or at the present time more particularly by steel, since the use of iron for this purpose has practically ceased). Among these may be mentioned lightness and buoyancy of hull and a somewhat greater cargo capacity for vessels of a corresponding tonnage. The life of the metal vessel is very much greater, the rate of insurance considerably less, and as a rule a smaller outlay for repairs is required.

The census of water transportation contains no information in regard to the initial cost of constructing vessels. While the statistics of valuation may be used as a factor to determine the relative importance of the metal and the wooden vessels, the number and gross tonnage are considered more reliable data in determining the increase or decrease.

TABLE 26.—NUMBER, GROSS TONNAGE, AND VALUE OF VESSELS IN EACH DIVISION, BY CHARACTER OF CONSTRUCTION, WITH PER CENT OF INCREASE: 1906 AND 1889.

DIVISION.	Census.	TOTAL.			IRON AND STEEL.			WOOD.			COMPOSITE.		
		Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.
Total	1906	37,321	12,893,429	$507,973,121	1,979	3,276,723	$306,229,289	35,247	9,581,348	$199,135,582	95	35,358	$2,608,250
	1889	30,485	8,359,135	206,992,352	548	525,218	50,918,319	29,834	7,793,259	153,552,913	103	40,658	2,521,120
Per cent of increase		22.4	54.2	145.4	261.1	523.9	501.4	18.1	22.9	29.7	[1] 7.8	[1] 13.0	3.5
Atlantic coast and Gulf of Mexico.[2]	1906	20,032	4,851,421	273,105,915	1,148	1,247,838	155,776,134	18,827	3,591,278	115,877,581	57	12,305	1,452,200
	1889	12,238	2,658,445	116,042,062	434	364,283	33,622,030	11,714	2,269,558	81,236,912	90	24,604	1,183,120
Per cent of increase		63.7	82.5	135.4	164.5	242.5	363.3	60.7	58.2	42.6	[1] 36.7	[1] 50.0	22.7
Pacific coast (including Alaska).[2]	1906	2,537	977,687	76,622,633	130	354,134	41,375,742	2,404	622,606	35,168,891	3	947	78,000
	1889	1,635	419,157	21,824,040	23	48,121	6,613,065	1,610	369,738	15,100,975	2	1,298	110,000
Per cent of increase		55.2	133.3	251.1	465.2	635.9	525.7	49.3	68.4	132.9	50.0	[1] 27.0	[1] 29.1
Great Lakes and St. Lawrence river.	1906	2,990	2,392,863	130,805,640	572	1,634,153	105,729,416	2,391	737,386	24,075,474	27	21,324	1,000,750
	1889	2,737	920,294	48,580,174	85	111,410	10,574,224	2,641	794,128	36,777,950	11	14,756	1,228,000
Per cent of increase		9.2	160.0	169.3	572.9	1,366.8	899.9	[1] 9.5	[1] 7.1	[1] 34.5	145.5	44.5	[1] 18.5
Mississippi river and its tributaries.[3]	1906	9,622	4,411,967	22,852,142	107	33,893	2,580,682	9,513	4,377,480	20,213,460	2	594	58,000
	1889	7,300	3,364,610	14,407,162	.....	.....	.....	7,300	3,364,610	14,407,162	.....	.....	.....
Per cent of increase		31.8	31.1	58.6	.....	.....	.....	30.3	30.1	40.3	.....	.....	.....
All other inland waters.[4]	1906	2,140	259,491	4,586,791	22	6,705	767,315	2,112	252,598	3,800,176	6	188	19,300
	1889	6,575	996,629	6,138,914	6	1,404	109,000	6,569	995,225	6,029,914	.....	.....	.....
Per cent of increase		[1] 67.5	[1] 74.0	[1] 25.3	266.7	377.6	604.0	[1] 67.8	[1] 74.6	[1] 37.0	.....	.....	.....

[1] Decrease.
[2] The character of construction of unrigged craft was not reported in 1889, but for purposes of comparison in this table all were assumed to be of wood.
[3] The character of construction was not reported in 1889, but for purposes of comparison in this table all vessels were assumed to be of wood.
[4] The character of construction was not reported for 14 vessels operating on the Red River (of the North) and 6,514 canal boats in 1889, but for purposes of comparison in this table all of these were assumed to be of wood.

There were very few unrigged craft of metal construction in 1889, and as the statistics for them were not shown separately at that census they are all included as "wood" in this table; all the vessels operating on the Mississippi river and its tributaries in 1889 are also considered as being of wood construction. The inclusion of these two groups as wooden craft has tended to increase slightly the totals for such vessels in 1889, but it is believed that the number, tonnage, and value of the metal vessels included were so small that they would have no appreciable effect on the percentages.

Although in 1906, as in 1889, much the largest proportion of the tonnage of the merchant marine was still of wood construction, in 1906, the gross tonnage reported for vessels constructed of iron or steel had increased 2,751,505 gross tons, or 523.9 per cent. The increase in wood construction was very much less, being actually 1,788,089 gross tons, or 22.9 per cent. Vessels of composite construction decreased by 5,300 tons. The most notable increase in iron and steel tonnage occurred on the Great Lakes, where there was a gain of 1,522,743 gross tons, accompanied by an actual decrease of 56,742 gross tons for wooden vessels. The largest increase in the gross tonnage of wooden vessels—1,321,720 tons—is shown for the Atlantic coast. Of the total gross tonnage reported for 1906, 3,276,723 tons, or 25.4 per cent, was for vessels of iron or steel construction; 9,581,348 tons, or 74.3 per cent, for wooden vessels; and 35,358 tons, or three-tenths of 1 per cent, for vessels of composite construction.

The number, tonnage, and value of the different classes of vessels, grouped according to the character of construction, are given in Table 27.

TABLE 27.—VESSELS OF EACH OCCUPATION IN EACH DIVISION, GROUPED BY CHARACTER OF CONSTRUCTION: 1906.

OCCUPATION AND DIVISION.	TOTAL.			IRON.			STEEL.			WOOD.			COMPOSITE.		
	Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.
STEAM.															
Freight and passenger	3,615	3,411,588	$286,218,089	218	314,107	$29,361,787	690	2,309,444	$200,113,544	2,690	768,857	$46,634,758	17	19,180	$1,108,000
Atlantic coast and Gulf of Mexico	1,523	1,045,811	121,136,485	156	194,638	17,735,465	239	654,431	86,647,264	1,123	193,987	16,563,756	5	2,755	190,000
Pacific coast (including Alaska)	604	451,270	52,164,977	37	92,378	9,756,072	49	220,839	28,796,941	517	137,634	13,561,964	1	419	50,000
Great Lakes and St. Lawrence river	932	1,842,251	107,897,440	24	27,041	1,865,750	388	1,426,876	92,862,714	510	372,453	12,308,976	10	15,881	860,000
Mississippi river and its tributaries	390	55,779	3,737,450	1	50	4,500	9	2,912	317,000	379	52,692	3,407,950	1	125	8,000
Canals and other inland waters of New York state	79	11,521	898,500				5	4,386	489,625	74	7,135	408,875			
All other inland waters	87	4,956	383,237							87	4,956	383,237			
Tugs and other towing vessels	3,079	261,375	39,062,249	169	20,395	3,683,955	251	63,507	10,890,462	2,649	176,513	24,383,332	10	960	104,500
Atlantic coast and Gulf of Mexico	1,690	148,992	25,894,551	140	17,685	3,185,940	183	52,449	8,869,821	1,363	78,582	13,808,790	4	276	30,000
Pacific coast (including Alaska)	313	24,151	3,353,927	4	804	205,727	10	1,678	417,467	299	21,669	2,730,733			
Great Lakes and St. Lawrence river	382	22,663	2,630,097	6	394	34,300	33	3,872	568,729	342	18,242	2,017,068	1	155	10,000
Mississippi river and its tributaries	619	62,836	6,822,210	18	1,398	245,988	22	5,088	954,445	578	55,881	5,571,777	1	469	50,000
Canals and other inland waters of New York state	38	1,868	222,812	1	114	12,000	3	420	80,000	32	1,295	120,812	2	39	10,000
All other inland waters	37	865	138,652							35	844	134,152	2	21	4,500
Ferryboats	536	261,073	29,578,380	64	43,513	5,978,517	92	107,893	13,861,081	379	109,253	9,715,782	1	414	23,000
Atlantic coast and Gulf of Mexico	270	162,834	19,970,466	61	42,996	5,893,517	66	71,502	10,078,250	143	48,336	3,998,699			
Pacific coast (including Alaska)	47	40,171	4,315,522				2	2,964	450,000	44	36,793	3,842,522	1	414	23,000
Great Lakes and St. Lawrence river	48	35,581	3,429,532				14	27,368	2,798,087	34	8,213	631,445			
Mississippi river and its tributaries	166	22,180	1,776,360	3	517	85,000	10	6,059	534,744	153	15,604	1,156,616			
Canals and other inland waters of New York state	2	97	6,500							2	97	6,500			
All other inland waters	3	210	80,000							3	210	80,000			
Yachts	2,176	82,275	24,281,861	13	2,121	512,000	121	36,173	12,012,020	2,016	41,643	11,036,641	26	2,338	721,200
Atlantic coast and Gulf of Mexico	1,577	70,461	21,290,339	9	1,754	383,000	98	34,615	11,424,070	1,449	31,944	8,797,269	21	2,148	686,000
Pacific coast (including Alaska)	66	1,065	294,800				1	102	17,000	65	963	277,800			
Great Lakes and St. Lawrence river	236	6,210	1,673,000	2	317	95,000	10	955	421,750	220	4,773	1,125,050	4	165	31,200
Mississippi river and its tributaries	222	3,255	563,400	2	50	34,000	9	318	57,500	211	2,887	471,900			
Canals and other inland waters of New York state	32	641	262,700				1	146	75,000	31	495	187,700			
All other inland waters	43	643	197,622				2	37	16,700	40	581	176,922	1	25	4,000
All other	521	43,210	7,632,148	21	5,193	938,800	35	14,171	3,337,272	463	23,193	3,256,076	2	653	100,000
Atlantic coast and Gulf of Mexico	353	29,796	5,634,486	19	5,066	888,800	22	11,310	2,534,150	310	12,767	2,111,536	2	653	100,000
Pacific coast (including Alaska)	36	1,450	310,919	1	27	15,000	1	203	44,329	34	1,220	251,590			
Great Lakes and St. Lawrence river	78	9,081	1,353,743				12	2,658	758,793	66	6,423	594,950			
Mississippi river and its tributaries	38	2,177	297,350	1	100	35,000				37	2,077	262,350			
Canals and other inland waters of New York state															
All other inland waters	16	706	35,650							16	706	35,650			
SAIL.															
Freight and passenger	5,181	1,672,862	51,415,756	34	40,345	1,751,471	76	185,268	8,080,980	5,069	1,442,556	41,347,305	2	4,693	236,000
Atlantic coast and Gulf of Mexico	4,227	1,105,901	33,213,849	22	23,639	785,471	35	58,831	2,803,315	4,168	1,018,738	29,389,063	2	4,693	236,000
Pacific coast (including Alaska)	547	302,798	11,275,586	12	16,706	966,000	8	15,142	676,206	527	270,950	9,633,380			
Great Lakes and St. Lawrence river	403	263,837	6,924,071				33	111,295	4,601,459	370	152,542	2,322,612			
Mississippi river and its tributaries															
Canals and other inland waters of New York state	4	326	2,250							4	326	2,250			
All other inland waters															
Yachts	1,594	24,155	4,169,253	3	209	51,000	18	2,137	715,300	1,549	20,954	3,202,453	24	855	200,500
Atlantic coast and Gulf of Mexico	1,358	21,046	3,775,743	2	134	21,000	17	2,122	714,000	1,317	17,958	2,842,543	22	832	198,200
Pacific coast (including Alaska)	104	1,459	174,110							104	1,459	174,110			
Great Lakes and St. Lawrence river	122	1,458	204,850	1	75	30,000	1	15	1,300	118	1,345	171,250	2	23	2,300
Mississippi river and its tributaries															
Canals and other inland waters of New York state	9	169	13,750							9	169	13,750			
All other inland waters	1	23	800							1	23	800			
All other	356	7,260	621,136							355	7,146	616,136	1	114	5,000
Atlantic coast and Gulf of Mexico	335	5,958	531,311							335	5,958	531,311			
Pacific coast (including Alaska)	15	1,026	83,475							14	912	78,475	1	114	5,000
Great Lakes and St. Lawrence river	6	276	6,350							6	276	6,350			
Mississippi river and its tributaries															
Canals and other inland waters of New York state															
All other inland waters															
UNRIGGED.															
Canal boats	2,237	303,581	2,952,197				9	602	18,500	2,227	302,876	2,932,897	1	103	800
Atlantic coast and Gulf of Mexico	663	103,877	1,112,475							663	103,877	1,112,475			
Pacific coast (including Alaska)															
Great Lakes and St. Lawrence river	6	1,134	13,800							6	1,134	13,800			
Mississippi river and its tributaries	2	323	4,100							2	323	4,100			
Canals and other inland waters of New York state	1,364	173,388	1,583,835							1,363	173,285	1,583,035	1	103	800
All other inland waters	202	24,859	237,987				9	602	18,500	193	24,257	219,487			
All other	18,026	6,826,050	62,042,052	9	5,678	78,850	156	125,967	5,843,750	17,850	6,688,357	56,010,202	11	6,048	109,250
Atlantic coast and Gulf of Mexico	8,036	2,156,745	40,546,210	5	2,520	27,350	74	74,146	3,784,721	7,956	2,079,131	36,722,139	1	948	12,000
Pacific coast (including Alaska)	805	154,297	4,649,317	3	2,525	19,000	2	766	12,000	800	151,006	4,618,317			
Great Lakes and St. Lawrence river	777	210,372	6,672,757				48	33,287	1,691,534	719	171,985	4,883,973	10	5,100	97,250
Mississippi river and its tributaries	8,185	4,265,417	9,651,272	1	633	32,500	31	16,768	280,005	8,153	4,248,016	9,338,767			
Canals and other inland waters of New York state	120	21,142	303,874				1	1,000	75,490	119	20,142	228,384			
All other inland waters	103	18,077	218,622							103	18,077	218,622			

The separation of the statistics for iron and steel vessels results in showing the great importance of steel tonnage as compared with that of iron, wood, or composite materials. Of the gross tonnage of 3,411,588 reported for the steam passenger and freight vessels, 2,309,444 tons, or 67.7 per cent, was for vessels of steel construction. While the importance of steel tonnage is not so pronounced for some of the other classes of vessels, it represents 24.3 per cent of the total gross tonnage for tugs and 41.3 per cent of that for ferryboats. A large proportion also of the tonnage of yachts on the Atlantic coast is of steel construction.

Vessels of wooden construction still predominate among the sailing craft and represent 86.2 per cent of the gross tonnage for the freight and passenger vessels. The 33 freight and passenger steel sailing vessels of 111,295 gross tons on the Great Lakes are almost all schooner barges, which, as explained on page 14, are included as sail rather than as unrigged craft.

The great preponderance of wooden tonnage among the unrigged craft is due partly to the class of work in which these craft are employed, and also to the fact that large numbers of them are controlled by small owners who can not command the capital required for the operation of vessels constructed of more expensive material.

The increase or decrease in the relative importance of metal and wooden tonnage in the different divisions is shown in Table 28.

TABLE 28.—*Per cent of gross tonnage of iron and steel, wood, and composite vessels, by divisions: 1906 and 1889.*

DIVISION.	Census.	Total.	Iron and steel.	Wood.	Composite.
Total	1906	100.0	25.4	74.3	0.3
	1889	100.0	6.3	93.2	0.5
Atlantic coast and Gulf of Mexico[1]	1906	100.0	25.7	74.0	0.3
	1889	100.0	13.7	85.4	0.9
Pacific coast (including Alaska)[1]	1906	100.0	36.2	63.7	0.1
	1889	100.0	11.5	88.2	0.3
Great Lakes and St. Lawrence river.	1906	100.0	68.3	30.8	0.9
	1889	100.0	12.1	86.3	1.6
Mississippi river and its tributaries.[2]	1906	100.0	0.8	99.2	(3)
	1889	100.0	.....	100.0	.....
All other inland waters[4]	1906	100.0	2.6	97.3	0.1
	1889	100.0	0.1	99.9	.....

[1] The character of construction of unrigged craft was not reported in 1889, but for purposes of comparison in this table they were all assumed to be of wood.
[2] The character of construction was not reported in 1889, but for purposes of comparison in this table all vessels were assumed to be of wood.
[3] Less than one-tenth of 1 per cent.
[4] The character of construction was not reported for 14 vessels operating on the Red River (of the North) and 6,514 canal boats in 1889, but for purposes of comparison in this table all of these were assumed to be of wood.

NUMBER AND TONNAGE OF VESSELS.

The individual craft was the unit of the Census enumeration, and the tonnage, which was reported for each craft, is the safest unit of measurement to determine their size and relative importance. "Five tons net register" represented the minimum size of craft included in the census. This term as used for Census purposes means a vessel the internal cubical contents of which are 500 cubic feet, excluding machinery and space occupied by the crew, or in the case of a vessel not documented it was construed to mean a vessel carrying 10 tons of cargo of 2,000 pounds each. Both the gross and net tonnage were reported, and for all documented vessels it was possible to make a correct report of the two kinds of tonnage. For undocumented vessels, for which the actual tonnage had not been ascertained, an estimate was accepted, and it was impossible, in many instances, to obtain a satisfactory report of the net as distinguished from the gross tonnage.

In steam vessels the space required for boilers, engines, and various superstructures reduces the percentage of net tonnage, though there is considerable variation in the proportion for the different classes of craft. There being less space required for this purpose in sailing vessels, the percentage of net tonnage is larger, and it is still larger for the unrigged craft.

TABLE 29.—*Gross and net tonnage, with per cent net is of gross tonnage, by class of vessels: 1906.*

CLASS AND OCCUPATION.	Gross tonnage.	NET TONNAGE.	
		Number of tons.	Per cent of gross tonnage.
Total	12,893,429	11,484,833	89.1
Steam	4,059,521	2,918,476	71.9
Freight and passenger	3,411,588	2,474,183	72.5
Tugs and other towing vessels	261,375	174,373	66.7
Ferryboats	261,073	187,238	71.7
Yachts	82,275	54,123	65.8
All other	43,210	28,559	66.1
Sail	1,704,277	1,539,513	90.3
Freight and passenger	1,672,862	1,510,658	90.3
Yachts	24,155	22,176	91.8
All other	7,260	6,679	92.0
Unrigged	7,129,631	7,026,844	98.6
Canal boats	303,581	292,386	96.3
All other	6,826,050	6,734,458	98.7

While this table indicates that the proportion which the net tonnage, as reported to the Census, constitutes of the gross tonnage is fairly consistent for the different classes of vessels, it is believed that the figures for gross tonnage are the more reliable; they are therefore used in all other tables of this report.

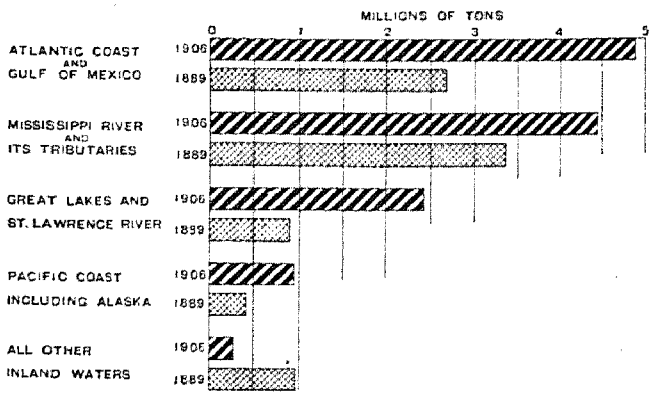
The limitation in size as established by the tonnage can be applied under all conditions, and the rule for the exclusion of the small craft was followed in all sections of the country. At the census of 1889 the rather indefinite term "of over 5 tons burden" was used to designate the minimum limit in the size of the vessels to be included, and while it is believed that this was construed to mean 5 "gross" tons, there is no positive statement that this rule was followed in the canvass for all sections of the country. To avoid the possibility of any misunderstanding, the term "5 tons net register" was adopted for the census of 1906.

TABLE 30.—NUMBER, GROSS TONNAGE, AND VALUE OF DIFFERENT CLASSES OF VESSELS, BY DIVISIONS: 1906 AND 1889.

DIVISION AND CLASS.	Census.	Number of vessels.	Gross tonnage.	Value of vessels.	Average tonnage per vessel.	Average value per ton.	Average value per vessel.
Total	1906	37,321	12,893,429	$507,973,121	345	$39	$13,611
	1889	30,485	8,359,135	206,992,352	274	25	6,790
Steam	1906	9,927	4,059,521	386,772,727	409	95	38,962
	1889	5,603	1,710,073	131,567,427	305	77	23,482
Sail	1906	7,131	1,704,277	56,206,145	239	33	7,882
	1889	7,945	1,675,706	53,192,972	211	32	6,695
Unrigged	1906	20,263	7,129,631	64,994,249	352	9	3,208
	1889	16,937	4,973,356	22,231,953	294	4	1,313
Atlantic coast and Gulf of Mexico	1906	20,632	4,851,421	273,105,915	242	56	13,633
	1889	12,238	2,658,445	116,042,062	217	44	9,482
Steam	1906	5,413	1,457,894	193,926,327	269	133	35,826
	1889	2,536	741,770	65,518,640	292	88	25,835
Sail	1906	5,920	1,132,905	37,520,903	191	33	6,338
	1889	6,277	1,293,192	42,685,982	206	33	6,800
Unrigged	1906	8,699	2,260,622	41,658,685	260	18	4,789
	1889	3,425	623,483	7,837,440	182	13	2,288
Pacific coast (including Alaska)	1906	2,537	977,087	76,622,633	385	78	30,202
	1889	1,635	419,157	21,824,040	256	52	13,348
Steam	1906	1,066	518,107	60,440,145	486	117	56,698
	1889	465	160,293	14,767,355	345	92	31,758
Sail	1906	666	305,283	11,533,171	458	38	17,317
	1889	681	195,508	6,231,340	287	32	9,150
Unrigged	1906	805	154,297	4,649,317	192	30	5,776
	1889	489	63,356	825,345	130	13	1,688
Great Lakes and St. Lawrence river	1906	2,990	2,392,863	130,805,640	800	55	43,748
	1889	2,737	920,294	48,580,174	336	53	17,749
Steam	1906	1,676	1,915,786	116,983,812	1,143	61	69,799
	1889	1,467	595,813	40,868,824	406	69	27,859
Sail	1906	531	265,571	7,135,271	500	27	13,437
	1889	962	185,081	4,238,850	192	23	4,406
Unrigged	1906	783	211,506	6,686,557	270	32	8,540
	1889	308	139,400	3,472,500	453	25	11,274
Mississippi river and its tributaries	1906	9,622	4,411,967	22,852,142	459	5	2,375
	1889	7,300	3,364,610	14,407,102	461	4	1,974
Steam	1906	1,435	146,227	13,196,770	102	90	9,196
	1889	972	192,974	9,622,608	199	50	9,900
Unrigged	1906	8,187	4,265,740	9,655,372	521	2	1,179
	1889	6,328	3,171,636	4,784,554	501	2	756
All other inland waters	1906	2,140	259,491	4,586,791	121	18	2,143
	1889	6,575	996,629	6,138,914	152	6	934
Steam	1906	337	21,507	2,225,673	64	103	6,604
	1889	163	19,223	790,000	118	41	4,847
Sail	1906	14	518	16,800	37	32	1,200
	1889	25	1,925	36,800	77	19	1,472
Unrigged	1906	1,789	237,466	2,344,318	133	10	1,310
	1889	6,387	975,481	5,312,114	153	5	832

The average gross tonnage per vessel increased from 274 in 1889 to 345 in 1906, but there is a great variety of craft represented by the figures on which these averages are based. While the average tonnage for the different classes shown in the table is of greater significance, each class embraces a large number of small craft that are used neither for freight nor for passenger traffic, and which are not usually considered in connection with the average tonnage or the average value per vessel or per ton of the merchant marine. These craft form a much smaller proportion of the vessels operating on the Great Lakes than of those for the other waters. This circumstance and the recent construction of a number of vessels of large tonnage designed especially for a particular class of freight have greatly increased the average size of the vessels in this section, so that it is now considerably larger than the general average for any of the other divisions.

DIAGRAM 6.—*Gross tonnage of all vessels, by divisions: 1906 and 1889.*



The large tonnage shown for the average vessel on the Mississippi river is due to the inclusion of the unrigged craft. The waters in which the unrigged craft are to operate and the class of freight to be carried necessarily control their size and to some extent the material to be used in their construction. Of the 4,265,740 gross tonnage reported for these craft operating on the Mississippi river and its tributaries, only 17,401, or less than 1 per cent, were iron and steel. In many instances the tonnage reported for these craft was not the result of actual measurement, but was an estimate. Considering all craft of this group, the largest average tonnage is shown for the Mississippi river and the largest average value for the Great Lakes. Large numbers of the barges on the Mississippi river and its tributaries are used to carry coal down the stream and are constructed so as to have the maximum tonnage, but with no intention of use on rough water, such as must be encountered by craft on the Great Lakes and other waters.

The aggregate tonnage for all vessels or the average tonnage per vessel conveys only an indefinite idea of the actual number of the large and small vessels. The relative importance of craft of different sizes can be ascertained only by arranging them in groups according to their gross tonnage; this has been done in Table 31.

Considering the total for all classes of craft reported at the census of 1906, it appears that the largest number, 10,886, is included in the group of from 5 to 49 gross tons. The largest total gross tonnage, 4,132,702, is shown for the group of from 1,000 to 2,499 tons, which includes only 3,350 vessels, the average tonnage being 1,234. The 124 vessels of 5,000 tons or over, representing the largest vessels reported, had a total tonnage of 865,385 and an average tonnage of 6,979.

While 65 per cent of the steam vessels are comparatively small craft of less than 100 gross tons, such craft represent only 4.8 per cent of the total steam tonnage; the large steam vessels, those of 1,000 tons or more, on the other hand, form only 10.3 per cent of the number, but represent 75.4 per cent of the total tonnage. There were 120 steam vessels of 5,000 or more tons each, the average tonnage of which was 7,042.

Among the sail vessels, craft of less than 100 gross tons constituted 69.3 per cent of the entire number, but represented only 7.1 per cent of the gross tonnage; while the large sail vessels of 1,000 tons or over, although constituting but 6.3 per cent of the number, represented 45.9 per cent, or nearly one-half of the tonnage.

The table is also significant in that it shows the importance of the unrigged craft of large tonnage. Of the 20,263 craft of this class, 26.4 per cent were of more than 500 tons, but the tonnage formed 62.3 per cent of the total tonnage for the class.

With the exception of 49 vessels on the Pacific coast all the vessels of 2,500 tons or over were reported from the Atlantic coast and Gulf of Mexico and from the Great Lakes district. The largest number of such vessels reported was among the steam vessels on the Great Lakes, and the next largest among the sail vessels on the same waters, the large vessels of the latter class being represented principally by the schooner barges. No vessels of this size were reported on the Mississippi river, but there were 4,332 vessels, with a tonnage of from 500 to 2,499, constituting 45 per cent of the total number reported in this district. Of these 4,332 vessels, however, only 63 were steam, the remainder being comprised principally of the numerous coal barges which figure so prominently in the traffic of that division.

Of the vessels on the Atlantic coast, 9,542, or 47.6 per cent, were of less than 100 tons; on the Pacific coast, 1,296 vessels, or 51.1 per cent; on the Great Lakes, 1,263, or 42.2 per cent; on the Mississippi river, 2,065, or 21.5 per cent; on the canals and other inland waters of New York state, 298, or 18.1 per cent; and on all other inland waters, 228, or 46.3 per cent. Excluding these small vessels there are altogether on the Atlantic coast 10,490 vessels, averaging 435 tons; on the Pacific coast, 1,241 vessels, with an average tonnage of 754; on the Great Lakes, 1,727 vessels, with an average tonnage of 1,358; and on the Mississippi river, 7,557 vessels, with an average tonnage of 573.

TABLE 31.—VESSELS GROUPED ACCORDING TO GROSS TONNAGE, BY DIVISIONS: 1906.

DIVISION AND CLASS.	TOTAL.		5 TO 49 TONS.		50 TO 99 TONS.		100 TO 199 TONS.		200 TO 299 TONS.		300 TO 399 TONS.	
	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.
United States	37,321	12,893,429	10,886	207,660	3,806	272,358	7,712	1,094,373	3,452	840,078	1,843	631,247
Steam	9,927	4,059,521	5,008	92,344	1,386	101,886	1,034	147,917	418	102,032	257	89,640
Sail	7,131	1,704,277	4,255	72,734	685	47,731	353	51,219	242	60,491	205	71,241
Unrigged	20,263	7,129,631	1,563	42,582	1,735	122,741	6,325	895,237	2,792	677,555	1,381	470,366
Atlantic coast and Gulf of Mexico	20,032	4,851,421	7,413	133,812	2,129	151,754	3,839	549,840	2,127	513,836	1,429	486,094
Steam	5,413	1,457,894	3,019	55,988	763	55,734	590	83,092	225	54,840	107	37,370
Sail	5,920	1,132,905	3,792	63,191	592	40,928	299	42,889	169	41,971	137	47,615
Unrigged	8,699	2,260,622	602	14,633	774	55,092	2,950	423,859	1,733	417,025	1,185	401,109
Pacific coast (including Alaska)	2,537	977,687	976	18,809	320	22,546	283	40,050	155	37,591	118	40,612
Steam	1,066	518,107	459	7,400	104	7,862	116	17,459	62	15,121	60	20,512
Sail	666	305,283	257	6,151	52	3,751	18	2,662	24	6,298	30	10,429
Unrigged	805	154,297	260	5,258	164	10,933	149	19,929	69	16,172	28	9,671
Great Lakes and St. Lawrence river	2,990	2,392,863	843	18,096	420	28,899	307	44,130	199	49,117	159	58,549
Steam	1,676	1,915,786	578	12,569	213	15,319	86	12,787	49	11,792	49	17,198
Sail	531	265,571	196	3,266	39	2,869	34	5,459	49	12,222	38	13,197
Unrigged	783	211,506	69	2,261	168	10,711	187	25,884	101	25,103	72	28,154
Mississippi river and its tributaries	9,622	4,411,967	1,383	31,759	682	48,654	1,912	295,536	784	196,099	105	34,990
Steam	1,435	146,227	788	12,346	265	19,991	183	26,898	76	18,839	30	13,893
Unrigged	8,187	4,265,740	595	19,413	417	28,663	1,729	268,638	708	177,260	66	21,097
Canals and other inland waters of New York state	1,648	209,152	105	1,990	193	16,244	1,153	136,313	174	40,676	1	300
Steam	151	14,127	80	1,523	17	1,145	45	5,924	4	1,006	1	300
Sail	13	495	9	103	2	183	2	209				
Unrigged	1,484	194,530	16	364	174	14,916	1,106	130,180	170	39,670		
All other inland waters	492	50,339	166	3,194	62	4,261	218	28,504	13	2,759	31	10,702
Steam	186	7,380	144	2,518	24	1,835	14	1,757	2	434	1	367
Sail	1	23	1	23								
Unrigged	305	42,936	21	653	38	2,426	204	26,747	11	2,325	30	10,335

DIVISION AND CLASS.	400 TO 499 TONS.		500 TO 999 TONS.		1,000 TO 2,499 TONS.		2,500 TO 4,999 TONS.		5,000 TONS AND OVER.	
	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.
United States	1,552	677,488	4,175	2,654,477	3,350	4,132,702	421	1,517,661	124	865,385
Steam	215	96,145	527	366,661	548	924,492	354	1,293,364	120	845,040
Sail	224	100,797	718	517,208	388	581,046	57	181,465	4	20,345
Unrigged	1,113	480,546	2,930	1,770,608	2,414	2,627,164	10	42,832		
Atlantic coast and Gulf of Mexico	869	380,276	1,441	997,370	585	852,007	169	556,311	31	230,121
Steam	115	51,113	240	176,096	184	289,359	131	420,399	30	224,903
Sail	155	69,299	485	356,998	262	380,716	28	84,080	1	5,218
Unrigged	599	259,864	707	464,276	139	181,932	10	42,832		
Pacific coast (including Alaska)	98	44,079	361	243,497	177	271,166	34	109,080	15	149,657
Steam	50	22,324	105	71,257	62	99,077	33	106,838	15	149,657
Sail	30	13,804	156	108,095	98	151,251	1	2,842		
Unrigged	18	7,951	100	64,145	17	20,238				
Great Lakes and St. Lawrence river	148	66,770	279	193,546	330	596,479	218	851,670	78	485,607
Steam	28	12,757	115	82,850	203	522,907	190	757,127	75	470,480
Sail	39	17,694	77	52,115	28	49,079	28	94,543	3	15,127
Unrigged	81	36,319	87	58,581	18	24,493				
Mississippi river and its tributaries	424	181,044	2,087	1,215,430	2,245	2,408,455				
Steam	21	9,482	56	34,824	7	9,954				
Unrigged	403	171,562	2,031	1,180,606	2,238	2,398,501				
Canals and other inland waters of New York state	11	4,400	7	4,634	4	4,595				
Steam			2	1,634	2	2,595				
Sail										
Unrigged	11	4,400	5	3,000	2	2,000				
All other inland waters	2	919								
Steam	1	469								
Sail										
Unrigged	1	450								

VALUATION OF VESSELS.

The census of transportation by water in 1880 embraced only steam vessels, and their valuation was secured through the United States local inspectors wherever the services of these officials were available. The estimated valuation was based upon the condition and age of the hull and boilers and the capacity of the

engines. Where there was no inspection the valuation was obtained from the owners or experts. The figures, however, are so meager that they have not been used in comparison with those of the later censuses.

In 1889 and 1906, the two years for which a regular census of transportation by water was taken, the commercial valuation of vessels was asked for, but in order to comprehend the comparative value of the data it is necessary to understand the varying conditions under which the figures were secured.

The report on water transportation for 1889 states that the valuation was high or low according to the basis upon which the information was given. In some instances the value was reported as the vessel's cost; in other cases the basis was what would be realized by sale; and in still others the valuation was given with the belief that the figures might be used as a basis for taxation. The report for 1889 also contains a comparative table from data collected by the Commissioner of Navigation showing for the years 1886 to 1890, inclusive, the insurance valuation of vessels on the Great Lakes. The information contained in this table was taken from Lloyd's Inland Register. It is doubtful if the variations in reporting the valuation of vessels in 1889 were wholly eliminated at the census of 1906. In fact the commercial valuation of a vessel or a fleet is capable of such an honest difference in the understanding of its meaning as might make comparative figures of valuation of vessels for the two censuses unreliable. If, for instance, commercial valuation is based upon the earning capacity of a vessel or fleet, the value might be subject to great fluctuations from year to year and would largely represent the business success of the enterprise. It seems manifestly unfair to report the commercial valuation as the cost of the vessels, since this fails to give proper consideration to the important elements of age and condition. The amount that would be realized by sale is also an unreliable and unfair basis and resolves itself into the question of supply and demand at the time the inquiry is made. An insurance valuation, the basis of a premium required by the underwriters, might in consequence be excessive. It may safely be assumed that the valuation given by owners, who thought the information might be made the basis of taxation, would be low, but it is not believed there are many who now take such a false and narrow view of the use of Government statistics.

A correct commercial valuation seems difficult to define positively, so as to eliminate all the objections here referred to, but no fair basis seems possible without giving due weight to the age and condition of the vessel as a whole, including boilers and engines, if a steamer, and spars and sails, etc., if a sail vessel, together with proper consideration of the cost and earning capacity. Such a basis was attempted at the census of 1906, but the success of the effort is uncertain. It appears impossible also to determine the extent of the variation in reporting the valuation of vessels at the two censuses. The tables and analysis which follow in illustration of this subject are submitted, therefore, with this understanding.

TABLE 32.—NUMBER, GROSS TONNAGE, AND VALUE OF VESSELS, BY CHARACTER OF CONSTRUCTION: 1906 AND 1889.

CLASS AND OCCUPATION.	Census.	TOTAL.			IRON AND STEEL.			WOOD.			COMPOSITE.		
		Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.	Number of vessels.	Gross tonnage.	Value of vessels.
Aggregate	1906	37,321	12,893,429	$507,973,121	1 979	3,276,723	$306,229,289	35,247	9,581,348	$199,135,582	95	35,358	$2,608,250
	1889	30,485	8,359,135	206,992,352	548	525,218	50,918,319	29,834	7,793,259	153,552,913	103	40,658	2,521,120
Steam	1906	9,927	4,059,521	386,772,727	1,674	2,916,517	289,689,438	8,197	1,119,459	95,026,589	56	23,545	2,056,700
	1889	5,603	1,710,073	131,567,427	534	515,003	50,153,519	5,033	1,173,860	79,538,108	36	21,210	1,875,800
Freight and passenger	1906	3,615	3,411,588	286,218,089	908	2,623,551	238,475,331	2,690	768,857	46,634,758	17	19,180	1,108,000
	1889	2,429	1,290,552	90,999,834	296	413,411	38,802,099	2,111	856,979	50,589,735	22	20,162	1,608,000
Tugs and other towing vessels.	1906	3,079	261,375	39,062,249	420	83,902	14,574,417	2,649	176,513	24,383,332	10	960	104,500
	1889	1,950	146,447	17,364,413	107	9,157	1,761,800	1,837	137,054	15,580,813	6	236	21,800
Ferryboats	1906	536	261,073	29,578,380	156	151,406	19,839,598	379	109,253	9,715,782	1	414	23,000
	1889	456	146,104	10,442,750	60	40,925	3,976,500	396	105,179	6,466,250	.....	.....	.....
Yachts	1906	2,176	82,275	24,281,861	134	38,294	12,524,020	2,016	41,643	11,036,641	26	2,338	721,200
	1889	230	13,586	3,858,810	25	4,864	1,649,720	202	8,369	2,074,090	3	353	135,000
All other	1906	521	43,210	7,632,148	56	19,364	4,276,072	463	23,193	3,256,076	2	653	100,000
	1889	538	113,384	8,901,620	46	46,646	3,963,400	487	66,279	4,827,220	5	459	111,000
Sail	1906	7,131	1,704,277	56,206,145	131	227,959	10,598,751	6,973	1,470,656	45,165,894	27	5,662	441,500
	1889	7,945	1,675,706	53,192,972	14	10,215	764,800	7,864	1,646,043	51,782,852	67	19,448	645,320
Freight and passenger	1906	5,181	1,672,862	51,415,756	110	225,613	9,832,451	5,069	1,442,556	41,347,305	2	4,693	236,000
	1889	6,863	1,641,846	49,165,617	8	9,734	554,500	6,795	1,612,875	47,996,047	60	19,237	615,070
Yachts	1906	1,594	24,155	4,169,253	21	2,346	766,300	1,549	20,954	3,202,453	24	855	200,500
	1889	653	15,040	2,750,755	6	481	210,300	644	14,487	2,519,955	3	72	20,500
All other	1906	356	7,260	621,136	.....	.....	.....	355	7,146	616,136	1	114	5,000
	1889	429	18,820	1,276,600	.....	.....	.....	425	18,681	1,266,850	4	139	9,750
Unrigged	1906	20,263	7,129,631	64,994,249	174	132,247	5,941,100	20,077	6,991,233	58,943,099	12	6,151	110,050
	1889	[1]16,937	4,973,356	22,231,953	.....	.....	.....	[1]16,937	4,973,356	22,231,953	.....	.....	.....

[1] Includes a few craft of metal construction which were not segregated in 1889.

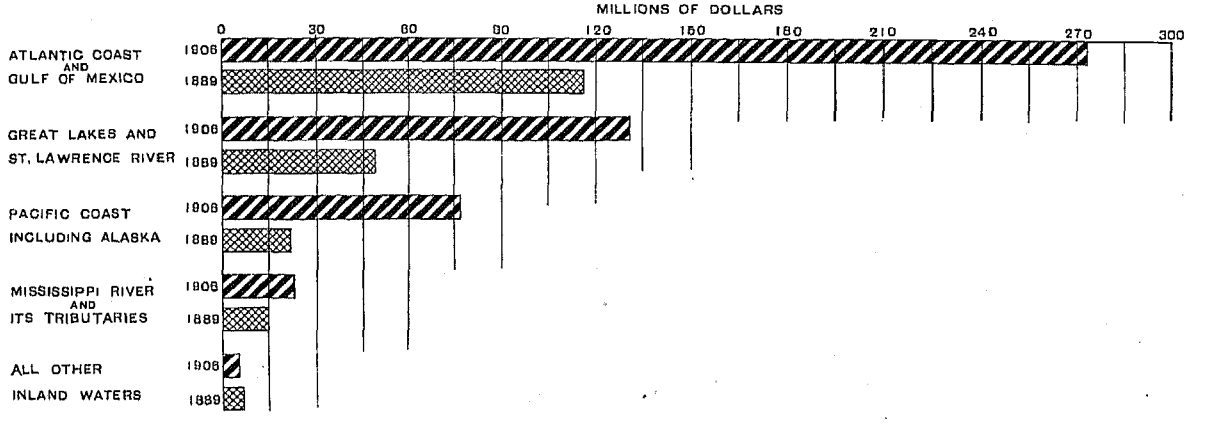
During the period covered by the table the total valuation of all kinds of vessels increased $300,980,769, or 145.4 per cent. Of the three general classes of vessels, the increase in the actual valuation of steamers was the largest, $255,205,300, or 194 per cent, representing 84.8 per cent of the total increase for all kinds of vessels. The value of sailing vessels increased $3,013,173, or 5.7 per cent, and that of unrigged craft $42,762,296, or 192.3 per cent.

Of steam craft, under which are also included any vessels propelled by gasoline engines, electric power, etc., those classed as freight and passenger were by far the most important, their valuation constituting 74 per cent of the total for all kinds of steam vessels in 1906 and 69.2 per cent in 1889, while in the former year it represented 56.3 per cent and in the latter year 44 per cent of the total valuation for all vessels—steam, sail, and unrigged. The actual increase in the valuation of the freight and passenger vessels was $195,218,255, and the average value per vessel increased $41,711, or 111.3 per cent. This large increase was due entirely to the gain in the number of iron and steel vessels, as there was a decrease in the value of vessels of wood or of composite construction. In addition to the fact that metal construction costs more per ton than wood, there has been since 1889 a great advance among the merchant navies of the world, not only in the size of the vessels, in which American freight and passenger steam vessels showed an average increase of 413 tons, or 77.8 per cent, but also in furnishings and speed. This latter element constitutes a very important factor in the cost of the modern steamship, but neither the census of 1889 nor that of 1906 made any report in reference to this feature of construction. Lloyd's Register of American Shipping, however, contains the name of but one vessel of American ownership built prior to 1889 having a sustained speed of over 16 knots—a small 17-knot steamer of 1,440 gross tons—whereas since that date, including those built during 1906, there have been added to the American merchant marine 38 vessels having a sustained speed of from 16½ to 20 knots and representing a total of 172,404 gross tons.[1]

Tugboats increased $21,697,836 in value, or 125 per cent, those of metal construction showing the largest gain. The average size of tugs varied but little at the two censuses. The value of ferryboats increased $19,135,630, or 183.2 per cent, the increase being principally for those of metal construction. Although the average size of vessels of this class has increased since the census of 1889, it has not been sufficient to account for the gain in valuation, which no doubt represents the replacing of old and worn-out vessels by those of more expensive type, as well as the addition of many new boats of a more modern and costly construction. In fact the conditions governing the demand for better vessels among passenger and freight craft apply equally to ferryboats, which may be said to be their coadjutors.

[1] Lloyd's Register of American Shipping, 1907–8.

DIAGRAM 7.—VALUE OF ALL VESSELS, BY DIVISIONS: 1906 AND 1889.



Yachts, both steam and sailing, may be treated together, since they are apart from the commercial or the earning tonnage of the country but represent the demands and taste of individual owners. Of these vessels, the valuation of steam yachts showed an increase of $20,423,051, or 529.3 per cent, against an increase of but $1,418,498, or 51.6 per cent, for those relying on sails for propulsion. The great gain in steam yachts is further illustrated by a comparison of the gain in tonnage, those using steam showing an increase of 68,689 tons, or 505.6 per cent, compared with a gain of 9,115 tons, or only 60.6 per cent, for those dependent upon sails. Both kinds of yachts show marked increases for composite construction, tugboats being the only other class of vessels to show any definite gain in this respect.

"All other" craft embraces the great variety of vessels not covered by the specific classes referred to, such as the numerous boats used for taking out pleasure parties, dredges, pile drivers, police boats, pilot boats, vessels used for scientific purposes, etc. The value of steam vessels of this class decreased $1,269,472, or 14.3 per cent, and sailing vessels showed a decrease of $655,464, or 51.3 per cent. The steam vessels included under this classification decreased in number 17, or 3.2 per cent, and 70,174, or 61.9 per cent, in tonnage; these losses, while seemingly inconsistent with the gain in other classes of steam vessels, are due probably to the difference in the character of the vessels included under this classification at the two censuses.

There was an increase of $2,250,139, or 4.6 per cent, in the actual value of freight and passenger sailing vessels, and a gain of 31,016 tons, or 1.9 per cent, in tonnage, but a decrease of 1,682, or 24.5 per cent, in their number. There was a marked falling off, however, in the relative importance of this class of vessels, as in 1906 they represented but 10.1 per cent of the total valuation for all kinds of craft, against 23.8 per cent in 1889. These figures, when considered in connection with the increase shown for steam craft, indicate the extent to which the latter have superseded the sailing vessel.

The value of unrigged craft increased $42,762,296, or 192.3 per cent, which is entirely out of proportion to the increase in number and tonnage, and indicates a greater value per vessel. The average value per vessel increased $1,895, or 144.3 per cent. The census of 1906 included a large number of undocumented dredges of considerable cost, statistics for which were not secured at the census of 1889, and to this fact is due much of the gain shown in value. There has been also a considerable decrease in the number of canal boats and an increase in the number of large barges, resulting to a great extent from the decreasing use of the old-time sailing ships, many of which have been reduced to mere hulks of large capacity, dependent upon the towboat for propelling power.

The average value per vessel and per gross ton, shown in Table 33, for the different classes of craft as reported at the last two censuses, are of interest in connection with the figures in Table 32.

TABLE 33.—AVERAGE GROSS TONNAGE AND VALUE PER VESSEL AND AVERAGE VALUE PER TON: 1906 AND 1889.

CLASS AND OCCUPATION.	Census.	TOTAL.			IRON AND STEEL.			WOOD.			COMPOSITE.		
		Average tonnage per vessel.	Average value per vessel.	Average value per ton.	Average tonnage per vessel.	Average value per vessel.	Average value per ton.	Average tonnage per vessel.	Average value per vessel.	Average value per ton.	Average tonnage per vessel.	Average value per vessel.	Average value per ton.
Aggregate	1906	345	$13,611	$39	1,656	$154,739	$93	272	$5,650	$21	372	$27,455	$74
	1889	274	6,790	25	958	92,917	97	261	5,147	20	395	24,477	62
Steam	1906	409	38,962	95	1,742	173,052	99	137	11,593	85	420	36,727	87
	1889	305	23,482	77	964	93,920	97	233	15,803	68	589	52,106	88
Freight and passenger	1906	944	79,175	84	2,889	262,638	91	286	17,336	61	1,128	65,176	58
	1889	531	37,464	71	1,397	131,088	94	406	23,965	59	916	73,091	80
Tugs and other towing vessels	1906	85	12,687	149	200	34,701	174	67	9,205	138	96	10,450	109
	1889	75	8,905	119	86	16,465	192	75	8,482	114	39	3,633	92
Ferryboats	1906	487	55,184	113	971	127,177	131	288	25,635	89	414	23,000	56
	1889	320	22,901	71	682	66,275	97	206	16,329	61	.....	.....	.....
Yachts	1906	38	11,159	295	286	93,463	327	21	5,475	265	90	27,738	308
	1889	59	16,777	284	195	65,989	339	41	10,268	248	118	45,000	382
All other	1906	83	14,649	177	346	76,358	221	50	7,033	140	327	50,000	153
	1889	211	16,546	79	1,014	86,161	85	136	9,912	73	92	22,200	242
Sail	1906	239	7,882	33	1,740	80,906	46	211	6,477	31	210	16,352	78
	1889	211	6,695	32	730	54,629	75	209	6,585	31	290	9,632	33
Freight and passenger	1906	323	9,924	31	2,051	89,386	44	285	8,157	29	2,347	118,000	50
	1889	239	7,164	30	1,217	69,313	57	237	7,063	30	321	10,251	32
Yachts	1906	15	2,616	173	112	36,490	327	14	2,067	153	36	8,354	235
	1889	23	4,212	183	80	35,050	437	22	3,913	174	24	6,833	285
All other	1906	20	1,745	86	.....	.....	.....	20	1,736	86	114	5,000	44
	1889	44	2,976	68	.....	.....	.....	44	2,981	68	35	2,438	70
Unrigged	1906	352	3,208	9	760	34,144	45	348	2,936	8	513	9,171	18
	1889	294	1,313	4	.....	.....	.....	[1]294	[1]1,313	[1]4	.....	.....	.....

[1] Includes a few craft of metal construction which were not segregated in 1889.

VALUE OF LAND PROPERTY.

The $507,973,121 reported as the commercial value of the vessels and craft covered by the census represents only a part of the capital devoted to the water transportation interests of the United States. The value of all land, wharves, warehouses and other buildings, fixtures, machinery, implements, tools, cash on hand, and all property other than the vessels and their outfits, but incident to their operation, should be theoretically included in the capital for the industry. As a matter of fact, although most of the large shipping companies own their wharves, a large proportion of the

land property is not owned by the transportation companies, and these companies could give no information concerning its value. Much of it is owned by local governments, or by dock companies, railroads, individuals, corporations, and others, that do not own or operate craft of any kind. While the capital invested in such property is employed primarily in water transportation, it also represents other interests, such as railroad traffic, storage and mercantile transactions, and it would be difficult, and in many cases impracticable, to make a segregation which would show the amount that could be considered as devoted to water transportation. To obtain any information on the subject would necessitate a special canvass of interests not represented by the owners of water craft. As this would add greatly to the expense of the census and the results would be of doubtful value, the inquiry concerning land property was restricted to that owned by the shipping companies. But many companies are engaged in transportation by both land and water, and others operate vessels in connection with a mining or manufacturing business. In such cases it was impracticable to separate the value of the property devoted to water transportation, and no amounts were reported.

It is the practice of the shipping companies operating out of New York to lease their dock facilities from the city. The lease may require the lessee to erect, at his own expense, all houses that may be necessary, subject to the approval of the Department of Docks and Ferries, the entire property reverting to the city on the expiration of the lease. As a similar practice prevails to some extent in other cities, the Census schedule required the value of leases or annual rentals to be reported separately. The answer to this inquiry included the amount of the annual rent and a proportion of the cost of the buildings, etc., if erected at the expense of the lessee.

Under the foregoing conditions it was impossible to obtain satisfactory data for land property, therefore the statistics are defective, and are not included in the tables. The value of the land property reported in answer to this inquiry amounted, however, to $80,912,947. This includes the value of the wharves and docks incident to the operation of the municipal ferries in New York and Boston, but does not include other wharves and docks owned by these or other cities. The leases and annual rentals were valued at $7,642,259.

CHARACTER OF PROPULSION AND HORSEPOWER.

The period between the census of transportation by water for 1889 and that for 1906 witnessed a great advance in the marine engine. Probably the most notable achievement is the success of the turbine engine and its adaptation to vessels of the largest type. The gasoline engine has also developed during the period, not only because of the small space required for the equipment and on account of its cleanliness, but by reason of the low cost of installation, cheapness of gasoline, and small expense for employees to operate it. The use of oil as a fuel appears to be growing in favor, partly because of the decrease in the number of stokers, coal trimmers, etc., which the use of this fuel makes possible. The internal combustion engine is rapidly developing, and if the gas engine meets the expectations of its many advocates it will revolutionize power in the maritime world.

Although electricity was reported as a means of propulsion on but few small yachts, it has an extensive and growing use on shipboard as a subsidiary power. Some idea of the extent to which electricity is employed in the latter capacity can be obtained from the equipment of the new Cunard liner *Mauretania*, on which the generating plant is said to consist of four sets of turbo-generators, each capable of supplying 4,000 amperes at 110 volts when run at a speed of 1,200 revolutions per minute. The steampower required for this would drive a 10,000-ton cargo steamer at a speed of 10 knots.[1]

As the census of transportation by water for 1906 was the first at which the character and amount of horsepower was secured, it is impossible to present comparative figures which will show the actual growth of horsepower in the merchant marine. The gain, however, in steam tonnage from 1,710,073 tons in 1889 to 4,059,521 tons in 1906, an increase of 137.4 per cent, is significant of what might be expected in the growth of horsepower. The average horsepower per ton in 1906 was eighty-five one-hundredths of a horsepower. Assuming that this average per ton was the same in 1889, that census would have shown a total of 1,453,562 horsepower, which compared with the total for 1906 would give an increase of 1,998,183 horsepower.

[1] American Marine Engineer, January, 1908.

TABLE 34.—CHARACTER OF POWER AND PROPULSION, BY DIVISIONS: 1906.

DIVISION.	Number of vessels.	Total horsepower.	SCREW.								
			Steam.			Gasoline.			All other.		
			Number of vessels.	Gross tonnage.	Horsepower.	Number of vessels.	Gross tonnage.	Horsepower.	Number of vessels.	Gross tonnage.	Horsepower.
Total	9,927	3,451,745	5,160	3,424,972	2,717,649	2,785	46,159	67,152	7	92	88
Atlantic coast and Gulf of Mexico	5,413	1,758,378	2,907	1,135,578	1,413,088	1,946	33,655	45,369	5	72	64
Pacific coast (including Alaska)	1,099	445,717	507	408,849	357,503	330	6,251	10,372	.....	.....	.....
Great Lakes and St. Lawrence river	1,676	982,555	1,396	1,802,244	912,947	219	3,122	5,687	1	5	8
Mississippi river and its tributaries	1,435	236,969	130	6,652	18,326	226	2,182	4,098	.....	.....	.....
Canals and other inland waters of New York state	151	17,767	107	8,109	10,324	30	521	812	1	15	16
All other inland waters	186	10,359	113	3,540	5,461	34	428	814	.....	.....	.....

DIVISION	STERN WHEEL.						SIDE WHEEL.						ALL OTHER.		
	Steam.			Gasoline.			Steam.			Gasoline.			Steam.		
	Number of vessels.	Gross tonnage.	Horsepower.	Number of vessels.	Gross tonnage.	Horsepower.	Number of vessels.	Gross tonnage.	Horsepower.	Number of vessels.	Gross tonnage.	Horsepower.	Number of vessels.	Gross tonnage.	Horsepower.
Total	1,055	193,208	247,020	351	4,592	5,747	543	389,327	413,152	19	247	305	7	924	632
Atlantic coast and Gulf of Mexico	157	17,226	19,557	26	395	533	368	270,831	279,675	2	22	30	2	115	62
Pacific coast (including Alaska)	184	67,364	54,271	7	175	208	34	35,394	23,246	4	74	117	.....	.....	.....
Great Lakes and St. Lawrence river	6	559	880	2	24	13	51	49,339	62,985	.....	.....	.....	1	193	35
Mississippi river and its tributaries	678	104,476	169,210	312	3,929	4,911	72	28,221	39,731	13	151	158	4	616	535
Canals and other inland waters of New York state	5	562	265	.....	.....	.....	8	4,920	6,350	.....	.....	.....	.....	.....	.....
All other inland waters	25	2,721	2,837	4	69	82	10	622	1,165	.....	.....	.....	.....	.....	.....

TABLE 35.—*Vessels propelled by steam, gasoline, and electricity, and per cent each is of total: 1906.*

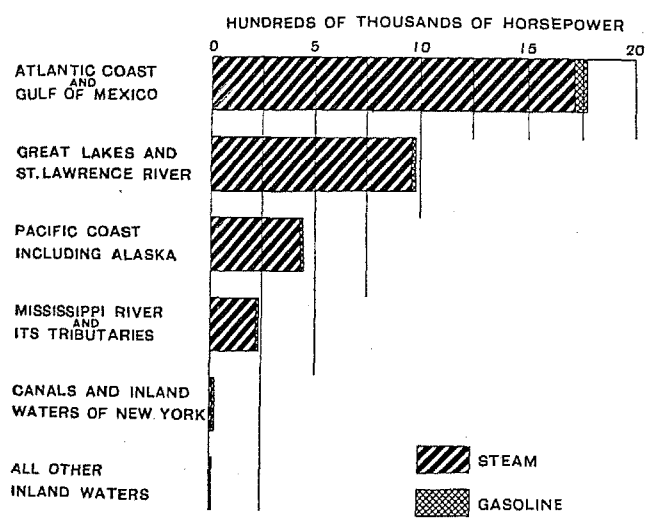
	Total.	Steam.	Gasoline.	Electric.	PER CENT OF TOTAL.		
					Steam.	Gasoline.	Electric.
Number of vessels	9,927	6,765	3,155	7	68.1	31.8	0.1
Screw	7,952	5,160	2,785	7	64.9	35.0	0.1
Stern wheel	1,406	1,055	351	.....	75.0	25.0	.....
Side wheel	562	543	19	.....	96.6	3.4	.....
All other	7	7	.....	.....	100.0	.....	.....
Gross tonnage	4,059,521	4,008,431	50,998	92	98.7	1.3	(1)
Horsepower	3,451,745	3,378,453	73,204	88	97.9	2.1	(1)

[1] Less than one-tenth of 1 per cent.

Of the total horsepower reported in 1906, 3,378,453, or 97.9 per cent, was steam and 73,204, or 2.1 per cent, was from the use of gasoline. The 88 horsepower reported as "electric" is in the shape of storage batteries on 7 small yachts.

The Atlantic coast and Gulf of Mexico led in the amount of horsepower reported, with 50.9 per cent, or slightly more than half the total, while the other districts came in the following order: The Great Lakes and St. Lawrence river, with 28.5 per cent of the total; the Pacific coast, with 12.9 per cent; the Mississippi river and its tributaries, with 6.9 per cent; the canals and other inland waters of New York state, with five-tenths of 1 per cent; and all other inland waters, with three-tenths of 1 per cent.

DIAGRAM 8.—*Horsepower of steam vessels: 1906.*



In respect to the character of propulsion, 7,952, or 80.1 per cent, of the vessels were equipped with the screw propeller, which was first applied in England in 1837 and in the United States in 1841.[1] Vessels equipped with the stern wheel ranked second in number and had their greatest use on rivers, 70.4 per cent being located in the Mississippi river district alone. This type of craft represented 14.2 per cent of the total number of all classes of vessels using power. Next

[1] Tenth Census, Report on Shipbuilding Industry.

in order came those equipped with the side wheel, forming 5.7 per cent of the total number, which indicates the limited use of this kind of propulsion, the first to which steampower was applied.

There is a great disproportion between the number of vessels propelled by steam and by gasoline engines when compared with their tonnage and horsepower. Vessels reporting the use of steampower for propulsion numbered 6,765, or 68.1 per cent of the total, but their tonnage was 4,008,431, or 98.7 per cent of the total tonnage for all classes, and their horsepower 3,378,453, or 97.9 per cent of the total. Gasoline boats, on the other hand, were reported to the number of 3,155, or 31.8 per cent of the total number for all classes of vessels, but their tonnage was only 50,998, or 1.3 per cent of the total, and their horsepower 73,204, or 2.1 per cent of the total. While the use of gasoline is largely confined to small craft, there are some fairly large vessels equipped with engines of this class having a capacity of several hundred horsepower. The expense of operating gasoline engines of large power together with the element of danger have undoubtedly been strong factors in confining their use to small vessels. The fact should not be overlooked that the Census inquiry was confined to vessels of not less than 5 net tons, so that the hundreds of boats of smaller tonnage using the gasoline engine do not appear in this report. Of the total tonnage shown in these tables, 3,471,223 tons, or 85.5 per cent, was propelled by the screw propeller; 389,574 tons, or 9.6 per cent, by the side wheel; 197,800 tons, or 4.9 per cent, by the stern wheel; and 924 tons, or less than one-tenth of 1 per cent, by other methods. The horsepower reported for the several types was as follows: Screw propeller, 2,784,889 horsepower, or 80.7 per cent of the total; side wheel, 413,457 horsepower, or 12 per cent; stern wheel, 252,767 horsepower, or 7.3 per cent; and for all other types, 632 horsepower, or less than one-tenth of 1 per cent.

The freight and passenger vessels reported 65.9 per cent of the total horsepower; tugs and towing vessels, 18.7 per cent; ferryboats, 7.7 per cent; yachts, 5.9 per cent; and all other craft, 1.8 per cent. The figures for passenger and freight vessels show that 76.5 per cent were fitted with screw propellers, 15.6 per cent with stern wheels, while 7.9 per cent were side wheelers. Among tugs and towing vessels, 78.9 per cent used screw propellers, 20.3 per cent stern wheels, and nine-tenths of 1 per cent side wheels. Of the ferryboats, 35.1 per cent were equipped with screw propellers, 21.1 per cent with stern wheels, 42.5 per cent with side wheels, while the equipment of 7 was of miscellaneous character, representing 1.3 per cent of the total number.

TABLE 36.—CHARACTER OF PROPULSION AND HORSEPOWER OF STEAM VESSELS, BY OCCUPATION: 1906.

OCCUPATION.	CHARACTER OF PROPULSION.					HORSEPOWER OF ENGINES.			
	Total.	Screw (number).	Side wheel (number).	Stern wheel (number).	All other (number).	Total.	Steam.	Gasoline.	All other.
Total	9,927	7,952	562	1,406	7	3,451,745	3,378,453	73,204	88
Freight and passenger	3,615	2,766	285	564	.....	2,275,712	2,255,295	20,417	.....
Tugs and other towing vessels	3,079	2,428	27	624	.....	645,286	637,950	7,336	.....
Ferryboats	536	188	228	113	7	265,659	264,414	1,245	.....
Yachts	2,176	2,093	7	76	.....	201,983	162,032	39,871	80
All other	521	477	15	29	.....	63,105	58,762	4,335	8

INCOME.

The only financial statistics included in this census relate to the value of the vessels and land property, the salaries and wages paid, and the gross income derived from the operation of the vessels during the census year. With the exception of some of the craft owned by municipalities or other local governments and those used exclusively for pleasure, such as yachts, all the craft included in the census were operated for the purpose of producing revenue. A small amount of revenue was also reported for yachts, but it represents income from chartering or leasing and was only incident to the other objects for which the craft were used.

At the census of 1889 there was no separation of the gross earnings, and therefore no comparison can be made of the amounts for each of the three sources of income shown in Table 37 for 1906. The increase in the total income for the different classes of craft and for all craft operating on the different waters of the country is shown in the comparative tables.

The income reported was the gross receipts for the entire census year. In cases where the owners were engaged in other business transactions entirely distinct from the operation of the vessels, such as the operation of railroads or mines, or manufacturing or mercantile pursuits, an estimate of the income derived from the vessels was given in reply to the Census inquiry. In some cases it was impossible to ascertain the exact amount of income from the different sources. Although the amount received for the passenger traffic was generally kept as a separate item in the account books of the shipping companies, in some instances, and especially for ferries, it was impracticable to obtain this amount as distinct from that received for the carriage of loaded vehicles or general express and freight matter, and in such cases estimates were

accepted. It was also impossible to obtain the income from craft operated as connecting links in railway systems. There are instances of duplication in the combination of the amounts reported as income from freight and as income from towing. Such duplication arises when the two classes of craft were operated under different ownership, the income from freight, which necessarily included the towing charge, being reported by the owner of the barges, and the income for towing by the owner of the tugboat. With these exceptions, the $294,854,532 given in Table 37 may be accepted as the gross earnings of all American craft during the year 1906; the totals for the three items "freight," "passenger," and "all other" do not, with the same degree of exactness, represent the income from each of these sources. They do, however, indicate that approximately 59.5 per cent of the gross income was derived from freight, 14.8 per cent from passengers, and 25.7 per cent from lightering, towing, chartering, etc. The proportion of the income that was derived from freight was largest on the Great Lakes and the St. Lawrence river and smallest for the vessels operating on the Mississippi river and its tributaries. The proportion derived from the passenger service was largest for the vessels on the Pacific coast and smallest for those on the Great Lakes and the St. Lawrence river.

TABLE 37.—GROSS INCOME—ALL VESSELS AND CRAFT, BY DIVISIONS AND OCCUPATIONS: 1906.

DIVISION AND OCCUPATION.	Total.	Freight.	Passenger.	All other.
Total	$294,854,532	$175,545,361	$43,645,365	$75,663,806
Freight and passenger	193,565,044	151,823,094	33,147,901	8,594,049
Towing vessels and unrigged craft	80,562,881	23,673,211	80,423	56,809,247
All other	20,726,607	49,056	10,417,041	10,260,510
Atlantic coast and Gulf of Mexico	159,759,924	83,890,161	25,643,332	50,226,431
Freight and passenger	92,096,988	68,185,461	18,208,365	5,703,162
Towing vessels and unrigged craft	54,727,996	15,697,425	46,254	38,984,317
All other	12,934,940	7,275	7,388,713	5,538,952
Pacific coast (including Alaska)	48,520,139	29,340,102	10,424,493	8,755,544
Freight and passenger	37,969,854	28,155,569	8,375,705	1,438,580
Towing vessels and unrigged craft	6,238,856	1,184,118	10,208	5,044,530
All other	4,311,429	415	2,038,580	2,272,434
Great Lakes and St. Lawrence river	65,274,702	52,076,533	4,866,904	8,331,265
Freight and passenger	56,850,553	51,150,376	4,408,880	1,291,297
Towing vessels and unrigged craft	7,067,422	889,511	1,168	6,176,743
All other	1,356,727	36,646	456,856	863,225
Mississippi river and its tributaries	17,342,638	7,450,869	2,281,243	7,609,926
Freight and passenger	5,934,629	4,038,002	1,766,581	130,046
Towing vessels and unrigged craft	9,342,145	3,412,867	15,780	5,913,498
All other	2,065,264		498,882	1,566,382
Canals and other inland waters of New York state	2,781,604	2,198,920	264,397	318,287
Freight and passenger	387,489	108,648	259,037	19,804
Towing vessels and unrigged craft	2,388,965	2,090,272	1,350	297,343
All other	5,150		4,010	1,140
All other inland waters	1,176,125	588,776	164,996	422,353
Freight and passenger	325,531	185,038	129,333	11,160
Towing vessels and unrigged craft	797,497	399,018	5,663	392,816
All other	53,097	4,720	30,000	18,377

The number, tonnage, and value of the vessels indicate the magnitude of the shipping interests, but the extent of their operations can only be determined by statistics of earnings, persons employed, and freight and passengers carried. Of these factors, it is believed that the totals for earnings, employees, and wages are the most complete. The increase in the gross income and the relation it bears to the tonnage and passengers carried is of course controlled to some extent by changes in freight and passenger rates. As shown in Table 1, the gross tonnage of the active vessels during 1906 showed an increase of 54.2 per cent over the tonnage for 1889, while the income increased 82 per cent. But on the other hand, the estimated commercial value of the craft increased 145.4 per cent, while in 1889 there was $78 of gross income for every $100 of value as compared with a gross income of $58 for every $100 of value in 1906. But as the value placed on the vessels and craft for Census purposes was not estimated with the care and consideration that should be given for values on which computations of this character are based, these percentages should be accepted only as an indication, and not as a true reflection of actual conditions. It is also probable that the totals for 1906 include the value of a larger number of yachts and of craft operated by railroads and others for which no income was returned than was reported at the census of 1889. If the figures for yachts and boats owned by local governments and those operated as connecting links in railway systems are excluded from the totals for 1906, there remain 31,772 vessels with a gross tonnage of 12,148,664 and valued at $450,521,010, or $37 per ton and $14,180 per vessel. The gross income from these

vessels for the year was $278,935,323, or $62 for each $100 of value. This tonnage, value, and income is almost wholly connected with the freight and passenger traffic, but it does not represent all the vessels and craft so employed, and because of the inherent defects existing in Census work of this character, the statistics for them should not be accepted as showing actual conditions.

EMPLOYEES AND WAGES.

The following inquiry and the accompanying instructions were used to collect the statistics for this feature of the census:

Employees: Account for the entire force employed on vessels or incident to their operation. The average number is the number required to operate the vessel. For employees on land give the average number employed during the entire year. If longshoremen or other persons are employed for short intervals, a careful computation should be made of the average number employed during the entire year, so as to avoid a duplication of the number when the reports for all craft, irrespective of ownership, are combined in the tabulations of the census. Give the total amount paid in wages and salaries during the year to all employees of each group. Wages should include board and lodging furnished as part compensation.

	AVERAGE NUMBER.	TOTAL AMOUNT PAID IN SALARIES OR WAGES DURING THE YEAR.
Employed on vessels or craft		$
EMPLOYED ON LAND, BUT INCIDENT TO THE OPERATION OF THE VESSELS OR CRAFT:		
Officers, managers, clerks, and all other salaried employees		$
All other employees		$
TOTAL		$

The number of persons reported as employed on vessels or craft was the number ordinarily required for their operation, including officers of all grades, seamen, stewards, cooks, laborers, etc. No distinction was made between the officers and the crew, because the managing owners contended that it was impracticable to separate the wages and salaries for the different classes. As it was the endeavor in all instances, where board was furnished the crew, to include, in the total wages, the amount of the food bill for the year, the wages should not be accepted as representing cash payments.

The land force reported included only the persons employed in connection with the operation of the vessels, in their loading and unloading, in the care and shipment of freight, in working about the warehouses, etc. The officers referred to in the inquiry are the general officers of corporations and do not include officers employed on the vessels.

TABLE 38.—EMPLOYEES, AND SALARIES AND WAGES, BY DIVISIONS: 1906.

DIVISION.	TOTAL.		ON VESSELS.		ON LAND.					
					Total.		Officers, managers, clerks, etc.		All other.	
	Number of employees.	Salaries and wages.	Number of employees.	Wages.	Average number of employees.	Salaries and wages.	Average number of employees.	Salaries.	Average number of employees.	Wages.
Total	188,348	$103,092,712	140,929	$71,636,521	47,419	$31,456,191	13,464	$12,276,420	33,955	$19,179,771
Atlantic coast and Gulf of Mexico	109,985	59,125,132	77,124	38,352,259	32,861	20,772,873	8,500	7,865,181	24,361	12,907,692
Pacific coast (including Alaska)	25,519	17,190,022	20,142	12,950,399	5,377	4,239,623	1,853	1,768,849	3,524	2,470,774
Great Lakes and St. Lawrence river	31,253	18,170,296	24,916	13,280,716	6,337	4,889,580	1,974	1,874,357	4,363	3,015,223
Mississippi river and its tributaries	17,473	7,063,776	15,016	5,692,117	2,457	1,371,659	1,011	686,526	1,446	685,123
Canals and other inland waters of New York state	2,710	1,020,715	2,472	920,260	238	100,455	92	54,695	146	45,760
All other inland waters	1,408	522,771	1,259	440,770	149	82,001	34	26,802	115	55,199

If a company was engaged exclusively in the shipping industry, and had a regular land force incident to the operation of vessels, this land force was reported in answer to the Census inquiry concerning the number employed on land; but in many instances the difficulties attending the collection of statistics concerning the number and wages of persons thus employed were somewhat similar to those referred to in connection with the valuation of land property. Such employees frequently work for master stevedores who load and unload vessels by contract. Where this practice prevailed or the stevedores were employed at

odd intervals, it was necessary to estimate the average number employed during the year and report as wages the amount paid for loading and unloading. As a rule, it is the large shipping companies which have the freight handled exclusively by their regular employees and the smaller operators who employ the contract stevedores. The shipments of many large vessels are, however, handled through arrangements with companies that make a specialty of loading and unloading freight.

The roustabouts and laborers employed in connection with craft operating on the Mississippi river and its tributaries are generally carried on the boat and included in the census as a part of the crew. Coal barges operating on these rivers are frequently loaded by the regular employees of the coal companies, and the delivery of the cargo does not include the unloading, which, as a rule, is done by the consignee. When this was the case the number of laborers was not included in the census. Machinery, however, is used extensively, especially in the shipment of ore, coal, and grain, and the number of persons employed on land in connection with vessels devoted to the carriage of such commodities is comparatively small. In some cases the regular employees of the shipping companies were engaged partly in branches of work not directly connected with the shipping, making it difficult to estimate the number that should be considered as employed exclusively in connection with water transportation.

There is thus little uniformity in the method of handling freight, and while the census includes practically all the land force, the statistics are not as complete as those for the persons employed on the vessels, and are presented, therefore, only in Table 38.

The number of persons employed on land was not reported at the census of 1889, but the number and wages of those reported as employed on the vessels at that census are given in the comparative tables. The inquiry at the census of 1889 called for the "number making up ordinary crew of vessel," and "total wages paid during the year," but there were no definite instructions in regard to the inclusion of board furnished as part compensation, and therefore a comparison of the aggregate wages in 1889 with the aggregate for 1906, which is supposed to include an allowance for board, indicates an increase that may be somewhat in excess of the actual increase.

The number of persons employed on vessels in 1906, when compared with the number so employed in 1889, shows an increase of 27,059. The number on steam vessels, including unrigged craft, increased by 45,178, while the number on sail vessels decreased by 18,119. The greatest number and the largest increase in employees is shown for vessels operating on the Atlantic coast and the Gulf of Mexico. The number for vessels in these waters increased 13,499, or 21.2 per cent, and formed 55.9 per cent of the total for all vessels in 1889 and 54.7 per cent of the total for 1906. The next greatest number, 24,916, was employed on the Great Lakes and the next, 20,142, on the Pacific coast.

There were 140,929 persons employed on vessels at the census of 1906, being an average of 3.7 for each vessel. This includes all classes of craft, on many of which none was employed. For the regular passenger and freight steamers the average for 1906 was 17.1 per vessel. The average for all vessels of this class can not be obtained for 1889, but the average for such vessels operating on the Atlantic coast and the Gulf of Mexico was 19.5 and for those on the Pacific coast 16.5 as compared with 16.5 and 19.8 in 1906.

The wages reported are the total amount paid during the year, but there is no indication of the term of employment. A vessel requires as large a crew for a cruise of one or two months as it does for one of a year, but the combination of the amounts paid for various periods of employment should not be used as a basis to compute the annual wages. The statistics include wages paid employees on dredges, pile drivers, and similar craft, many of which are operated by harbor commissioners or other Government officials. The wages on these craft are, in many instances, much higher than on other vessels. The statistics, being compiled uniformly for all classes of vessels, can be used to show the contribution of each class to the aggregate for the United States. Of the $103,092,712 reported for salaries and wages, $71,636,521, or 69.5 per cent, were for employees on vessels and $31,456,191, or 30.5 per cent, for those on land. Of the total for employees on vessels, $50,504,508, or 70.5 per cent, went to those on steam vessels; $10,371,047, or 14.5 per cent, to those on sail vessels; and $10,760,966, or 15 per cent, to those on unrigged craft. Unrigged craft are sometimes operated by the crew of the steamboat and in such cases the wages are credited to the steam vessels. The $59,125,132 reported as salaries and wages on the Atlantic coast and the Gulf of Mexico forms 57.4 per cent of the total. The next largest amount, $18,170,296, or 17.6 per cent, is reported for the Great Lakes. The Pacific coast ranks third in this respect, the total being $17,190,022, or 16.7 per cent.

The census contains no information in regard to the number of the different classes of seamen or to the rates of wages paid, because such information is contained in the annual reports of the Bureau of Navigation, Department of Commerce and Labor. The statistics which are compiled by the United States shipping commissioners show the average rates of wages paid to seamen of the various grades on steam and sailing vessels in the different branches of the foreign and coasting trade. These figures indicate a wide range of wages in the American merchant marine, as is shown by the following tabular statement prepared from that source, which presents data for the year ending June 30, 1906. It should be explained that the statement does not include the wages paid on

the Great Lakes but only on the Atlantic coast and Gulf of Mexico and the Pacific coast, and that the extreme rates given must not be accepted as the lowest and highest wages paid in individual cases; they are simply port averages. The rates represent the cash earnings of the crew and do not include board furnished as part compensation.

Range of rates of monthly wages.

GRADE.	On steam vessels.	On sail vessels.
Able seamen	$15 to $45.42	$15 to $40
Boatswains	25 to 50	20 to 50
Carpenters	30 to 60	25 to 53.57
First mates	40 to 125	25 to 61.50
Second mates	30 to 76.67	18 to 50.12
Firemen	16 to 50	.....
Trimmers	14 to 40.53	.....
First engineers	70 to 180	.....
Second engineers	50 to 126.50	.....

FREIGHT.

The annual reports and monthly summaries of commerce and finance published by the Bureau of Statistics contain information concerning the quantity of freight carried on the Great Lakes and other waters of the United States; the reports of the chief of engineers of the United States Army and of the boards of trade and chambers of commerce of various cities also contain statistics on this important feature of water commerce. As the statistics contained in these various reports do not cover the operations of all vessels, being taken for different periods and not compiled uniformly, they could not be used by the Census Office to show the total quantity of freight moved by all American craft during the census year. Those compiled by the Bureau of Statistics for the freight carried on the Great Lakes could, however, be used by the Census, and in order to make use of them and thus avoid duplication of work the Census schedule was made to correspond as nearly as possible with the schedule used by the Bureau of Statistics.

The Census inquiry was designed to obtain for each vessel a report of the quantity, in net tons, of all freight carried during the year 1906, classified by ports of shipment and receipt. The quantities for the following commodities were reported separately:

- Canned goods.
- Cement, brick, and lime.
- Coal.
- Cotton.
- Flour.
- Fruits and vegetables.
- Grain.
- Ice.
- Iron ore.
- Lumber.
- Naval stores.
- Petroleum and other oils.
- Phosphate and fertilizer.
- Pig iron and steel rails.
- Stone, sand, etc.
- Tobacco.
- Miscellaneous merchandise.

The collection of statistics of freight was perhaps attended by more difficulties than any other feature of the census. Many of the managing owners kept no record of the quantities of the different commodities carried and could therefore give only estimates in reply to the Census inquiry. The absence of all records was most frequent in the case of vessels which operate on rivers and bays, and ship and discharge miscellaneous freight at numerous landings. Frequently package freight of this character is not weighed, and if the weight is taken no record of it is preserved. To meet cases where no record or estimate of the quantity of the different commodities could be obtained the schedule called for an "estimated total quantity of freight of all kinds shipped from ports during the year (tons of 2,000 pounds)," and a corresponding inquiry was made concerning the deliveries. It is believed that the managing owners or masters of vessels gave reasonably accurate estimates of the total tonnage carried during the year, even when unable to approximate the quantities of the different classes of merchandise.

Estimates and uncertainties of this character necessarily entered into the statistics of freight for the census of 1889, and a comparison of the totals for that census with those for 1906 should not be accepted as showing the actual increase. But such a comparison is of some value as an indication of general conditions.

TABLE 39.—*Freight transportation, including harbor traffic, by divisions: 1906 and 1889.*

DIVISION.	Census.	Freight carried (net tons).	Per cent of total.
Total	1906	265,545,804	100.0
	1889	129,851,658	100.0
Atlantic coast and Gulf of Mexico	1906	140,512,043	52.9
	1889	52,712,124	40.6
Pacific coast (including Alaska)	1906	17,622,816	6.6
	1889	11,249,927	8.7
Great Lakes and St. Lawrence river	1906	[1]75,609,649	28.5
	1889	25,206,974	19.5
Mississippi river and its tributaries	1906	27,856,641	10.5
	1889	29,401,409	22.6
All other inland waters	1906	3,944,655	1.5
	1889	11,221,224	8.6

[1] From the report of the Bureau of Statistics on the internal commerce of the United States and includes 2,003,453 net tons of bunker coal.

As this report relates only to freight carried on American vessels it does not represent the total traffic of American ports. Attention is called also to the following:

The 265,545,804 net tons of freight reported for 1906 include 88,026,046 tons, which is the estimated quantity carried on lighters and barges in and around harbors for all waters except the Great Lakes. This was necessary in order to obtain data as nearly as possible comparable with 1889. The statistics for the Great Lakes were compiled by the Bureau of Statistics, which does not take cognizance of harbor traffic. This class of freight does not appear to have been reported for the Great Lakes at the census of 1889, but it is presumed that at that census it was included in the statistics for all the other waters, though probably not as fully reported then as in 1906.

The figures for the Atlantic coast and the Gulf of Mexico include practically the same class of traffic at both censuses, with the exception of the lighterage or harbor

work reported for some ferryboats in 1906; this class of freight was omitted from the statistics for the division at the census of 1889 and was not fully reported for 1906.

The totals for the Pacific coast for 1889 include the freight carried on fishing vessels—that is, the provisions and supplies to the fishing grounds, and the catch of fish to the market or cannery. All fishing vessels and freight carried on them were excluded from the census of 1906. The freight represented by logs towed in rafts was also partially reported in 1889 but omitted entirely in 1906.

Freight carried between American and Canadian ports on the Great Lakes was included in 1889 but omitted in 1906.

The tonnage of freight transported in vessels of the United States in 1906 is more than double that reported for 1889, while the proportionate increases for the Atlantic coast and the Great Lakes are considerably larger. In this respect the Mississippi river system shows a small decrease, and "all other inland waters," which is made up almost wholly of the canals of the country, shows a large decrease.

TABLE 40.—FREIGHT SHIPPED, BY COMMODITIES: 1906.

COMMODITY.	Total.	Atlantic coast and Gulf of Mexico.	Pacific coast (including Alaska).	Great Lakes and St. Lawrence river.[1]	Mississippi river and its tributaries.	All other inland waters.
Canned goods.....net tons..	402,781	193,602	144,372	(2)	63,697	1,110
Cement, brick, and lime.....net tons..	5,165,051	4,738,177	251,677	(2)	95,443	79,754
Coal.....net tons..	[3]49,109,605	19,149,753	451,781	[3]17,575,467	11,033,011	899,593
Cotton.....net tons..	968,337	793,992	25,957	(2)	146,975	1,413
Flour.....net tons..	1,876,855	104,392	350,918	1,334,979	81,900	4,666
Fruits and vegetables.....net tons..	1,100,113	796,329	232,214	(2)	55,703	15,867
Grain.....net tons..	5,792,012	530,843	691,779	3,089,329	380,721	499,340
Ice.....net tons..	2,041,939	1,951,188	2,493	(2)	17,229	71,029
Iron ore.....net tons..	41,524,102	18,465	37	41,297,209	171,779	36,612
Lumber.....M ft..	7,111,144	2,792,742	1,981,930	1,883,175	225,545	226,752
Naval stores.....net tons..	392,027	373,261	10,267	(2)	770	7,729
Petroleum and other oils.....bbls..	30,029,515	16,840,716	10,929,939	(2)	2,256,230	2,630
Phosphate and fertilizer.....net tons..	1,277,215	1,187,883	37,144	(2)	44,413	7,775
Pig iron and steel rails.....net tons..	1,165,825	664,758	19,861	414,110	55,346	11,750
Stone, sand, etc.....net tons..	14,659,972	7,391,354	2,310,008	(2)	4,004,259	924,351
Tobacco.....net tons..	281,892	165,776	2,115	(2)	11[illegible],000	1
Miscellaneous merchandise.....net tons..	32,592,973	18,580,196	3,536,302	[4]7,305,390	2,385,418	785,577

[1] From the report of the Bureau of Statistics on the internal commerce of the United States.
[2] Included in "miscellaneous merchandise."
[3] Includes 2,003,453 net tons of bunker coal.
[4] Includes canned goods, cement, brick, and lime, cotton, fruits and vegetables, ice, naval stores, petroleum and other oils, phosphate and fertilizer, stone, sand, etc., and tobacco.

Exact comparisons of the data shown in Table 40 can not be made with similar data for 1889, as it is impossible to separate the harbor traffic from the figures for the latter census. The statistics represent "shipments" of freight, in American vessels only, whether from domestic or from foreign ports. A similar table of "receipts" would vary in the aggregate for the United States but slightly from this, but owing to shipments from one division to another the totals for some of the divisions for certain commodities might differ considerably.

The statistics for the Great Lakes were obtained from the report of the Bureau of Statistics on the internal commerce of the United States. This report does not classify separately certain commodities which are classified separately on the Census schedules. Therefore the total for such commodities for the United States does not include the small amounts possibly shipped on the Great Lakes and relate to domestic traffic only. There are other limitations described in the separate section on the Great Lakes.

The statistics of freight movement on the inland waters as compiled by the Census do not agree with those contained in the reports of the chief of engineers of the United States Army, principally because the Census reports are for the calendar year, while the reports of the chief of engineers cover the fiscal year ending June 30, and also because the Census reports include neither the operation of boats under 5 tons nor the movement of rafted or floated material, both of which are included in the reports of the War Department.

Judged by the tonnage moved, coal is the most important single item of merchandise in the water commerce of the United States. The movement is composed principally of shipments of hard coal from the railroad terminals on the coast of New Jersey and of soft coal from Atlantic coast ports farther south. Immense quantities of anthracite and bituminous coal are also carried westward on the Great Lakes from Lake Erie ports. The Mississippi river coal traffic is composed almost wholly of the shipment of soft coal on barges from the Pittsburg region to Cincinnati, Louisville, St. Louis, New Orleans, and other cities on the Mississippi river and its tributaries. All available statistics show that the movement of coal has increased remarkably since 1889 in all divisions except the Pacific coast. The coal taken from the New Jersey railroad terminals for consumption in and about Greater New York is treated as a part of the local traffic of that harbor, as it was found impossible to obtain accurate statistics of this movement. According to the best information obtainable, however, it almost equals the entire interport traffic in coal on the Atlantic coast and Gulf of Mexico. Bunker coal, loaded for use on the vessels, is not included in the Census reports.

Next to coal the greatest tonnage is shown for iron ore, although the transportation of this commodity on

the waters of the United States other than the Great Lakes is insignificant. The movement was greatest from ports on Lake Superior and on Lake Michigan, and was perhaps greater than that of any single commodity in an equally small field in any other part of the world. Iron ore shipments in 1889 amounted to only 8,279,032 tons, while in 1906 they amounted to 41,524,102 tons, an increase of over 400 per cent.

"Miscellaneous merchandise" embraces a multiplicity of articles, but disregarding these, building materials—stone, sand, brick, cement, and lime—form the third most important class of freight. Vast quantities of these materials are transported by water. The movement, moreover, is not localized, but reported for all waters where large cities create a demand for such materials.

The quantity of lumber or timber shipped by water in 1889 was 24,935,636 tons, or approximately 12,000,000 thousand feet, and in 1906 it was only 7,111,144 thousand feet, a very large decrease. Except for "all other inland waters" a decrease in lumber transportation is noted on all the waters of the United States. With the gradual exhaustion of the forests near the water courses, the lumber industry has been pushed so far into the interior that water transportation of the product is impracticable. The figures for 1889 included to some extent the movement of timber in rafts, which was omitted in 1906, because it was impossible to secure correct information concerning the quantity moved in this manner. This change in methods accounts for the apparent decrease in the quantity of lumber moved on the Pacific coast, as upon the waters of this division large quantities of timber are still shipped in the form of rafts. If the statistics of this movement in 1906 were fully reported, it would doubtless show a large increase over 1889.

The largest quantities of grain and flour are shown for the Great Lakes, the movement being eastward from Duluth, Superior, Chicago, and Milwaukee. Much of the grain reaches the seaboard for export by way of the Erie canal, and forms one of the most important items in the foreign trade of the country. The principal ports of shipment for exported breadstuffs are Boston, New York, Philadelphia, Baltimore, and Newport News on the Atlantic coast; New Orleans and Galveston on the Gulf; and San Francisco, Portland, and the Puget Sound ports on the Pacific.

The transportation of petroleum by water consists largely of exports of crude and refined oil from the customs districts of New York, Philadelphia, Wilmington, Del., Galveston, and San Francisco, and the coastwise movement of crude petroleum from the Texas oil territory to eastern ports for refining. The tank steamers employed in this commerce present probably the most economical method of water transportation.

The transportation of ice is confined largely to the Atlantic coast, and consists chiefly in the shipment of the natural product from Maine and other New England states to southern cities, and from points on the Hudson river to New York city. The census of 1889 reports 2,692,873 tons of ice shipped on the Atlantic coast, while only 1,951,188 tons are reported for 1906. The decrease is due probably to the increase in the manufacture of ice, for which the gross value of products increased from $4,900,983 in 1890 to $23,790,045 in 1904.[1]

A large proportion of the phosphate and fertilizer produced in this country is transported by water, either in coastwise commerce or as exports. Much of the crude rock is either exported in that form or is transported from Florida or South Carolina to cities farther north for manufacture into the finished fertilizer. In no division except the Atlantic coast and Gulf of Mexico are phosphate and fertilizer carried by water to any considerable extent.

TABLE 41.—*Freight carried and income received for freight, exclusive of harbor work, by divisions: 1906.*

DIVISION.	Freight (net tons).	Per cent of total.	Income.	Per cent of total.
Total	177,519,758	100.0	$175,545,361	100.0
Atlantic coast and Gulf of Mexico	65,360,958	36.8	83,890,161	47.8
Pacific coast (including Alaska)	13,301,293	7.5	29,340,102	16.7
Great Lakes and St. Lawrence river	[1]75,609,649	42.6	52,076,533	29.7
Mississippi river and its tributaries	19,531,093	11.0	7,450,869	4.2
All other inland waters	3,716,765	2.1	2,787,696	1.6

[1] From the report of the Bureau of Statistics on the internal commerce of the United States and includes 2,003,453 net tons of bunker coal.

The true relation of freight and income can not be determined without complete information in regard to the distances the freight was carried, the character of the commodities, the kind of vessels, and many other considerations that have an important bearing upon the subject. The Census schedule called for the distance sailed by each vessel during the year, but such a large number of shipowners declared their inability to furnish the information, that the inquiry was abandoned. The absence of such information renders it impossible to make any comparison of the tonnage and gross income from freight. The figures show, however, that the proportions in which the divisions contribute to the total income are very different from the proportions in which they contribute to the total quantity of freight. The Pacific coast contributes 7.5 per cent of the total quantity of freight as contrasted with 16.7 per cent of the total income, a fact which indicates that the average haul is longer and the work generally more costly than in other sections of the country. To a less degree the same conditions are apparent for the Atlantic coast and the Gulf of Mexico. On the other hand, the proportions for the Great Lakes and the Mississippi river are reversed, the amount of freight forming a much larger

[1] Census of Manufactures, 1905, Bulletin 83.

per cent of the total than the income. In both these divisions the bulky commodities—iron ore, grain, and coal on the Great Lakes, and coal on the Mississippi river—form overwhelming proportions of the total freight carried, and the charges in proportion to the tonnage and distance are very low. The conditions surrounding water transportation in different parts of the country are matters of common knowledge and confirm the general accuracy of the statistics.

Table 41 embraces all freight transported from one port to another, but does not include harbor work, lightering, etc. While the statistics reported for vessels engaged in harbor traffic are included in the general tables, the different varieties of merchandise transported by such craft between different points in the harbor were not reported. Shipmasters were not required to make a report of the various commodities thus transported, but did report the total quantity carried during the year, which is presented in Table 42.

TABLE 42.—*Number of tons carried by vessels engaged in harbor work, by divisions: 1906.*[1]

DIVISION.	Tons.
Total	88,026,046
Atlantic coast and Gulf of Mexico	75,151,085
Pacific coast (including Alaska)	4,321,523
Mississippi river and its tributaries	8,325,548
All other inland waters	227,890

[1] This table does not include harbor freight on the Great Lakes.

The fact that harbor freight on the Great Lakes is not included should always be given due weight in accepting the statistics for this feature of water transportation. Harbor traffic about Chicago, Cleveland, Buffalo, Milwaukee, and other large cities on the Great Lakes is undoubtedly of immense proportions, and if the returns of such operations had been obtained, the total amount of harbor freight would be much larger than is shown in Table 42.

Nearly all the harbor work represented by the 88,026,046 tons of freight moved was reported for ports on the Atlantic coast and Gulf of Mexico. New York, with its long water front provided with docks and piers and navigable at almost all points for the largest vessels, and with its immense population, must necessarily require a large number of vessels to meet the demands for service of this character. It is safe to state that a very large proportion of the whole is represented by operations in that harbor. The single item of coal consumed in New York, particularly anthracite, practically all of which is transported from the railroad terminals in New Jersey, amounts to several millions of tons annually. All supplies for the city except those produced within its own borders, those delivered by the railroads entering at the north, and the limited amount coming from the outlying counties of Long Island, must be delivered by water.

A more detailed discussion of freight is presented in the separate sections of this report, which give details for the several divisions and for the shipments and receipts of freight to and from foreign countries.

The value of the foreign trade of the United States is given for a series of years in Table 43, which shows the proportion in which this value was divided between American and foreign vessels.

Table 44 shows the tonnage of the sailing and steam vessels of the United States merchant marine, exclusive of fishing vessels, classified in accordance with the character of trade in which the tonnage was employed, whether coastwise or foreign.

TABLE 43.—*Value of the foreign trade of the United States in American and foreign vessels: 1889 to 1906.*[1]

YEAR ENDING JUNE 30—	Total.	In American vessels.	In foreign vessels.	Per cent in American vessels.
1889	$1,420,868,649	$203,805,108	$1,217,063,541	14.3
1890	1,573,567,830	202,451,086	1,371,116,744	12.9
1891	1,656,540,812	206,459,725	1,450,081,087	12.5
1892	1,784,733,386	220,173,735	1,564,559,651	12.3
1893	1,626,082,075	197,765,507	1,428,316,568	12.2
1894	1,468,290,672	195,268,216	1,273,022,456	13.3
1895	1,456,403,388	170,507,196	1,285,896,192	11.7
1896	1,565,665,408	187,691,887	1,377,973,521	12.0
1897	1,714,829,043	189,075,277	1,525,753,766	11.0
1898	1,743,820,496	161,328,017	1,582,492,479	9.3
1899	1,806,876,063	160,612,206	1,646,263,857	8.9
1900	2,089,528,616	195,084,192	1,894,444,424	9.3
1901	2,151,935,411	177,398,615	1,974,536,796	8.2
1902	2,104,849,301	185,819,987	1,919,029,314	8.8
1903	2,240,801,420	214,695,032	2,026,106,388	9.6
1904	2,230,938,633	229,735 119	2,001,203,514	10.3
1905	2,393,809,408	290,607,946	2,103,201,462	12.1
1906	2,690,014,559	322,347,205	2,367,667,354	12.0

[1] Statistical Abstract of the United States, 1906, page 620.

TABLE 44.—*Tonnage of the sail and steam vessels of the merchant marine of the United States employed in the foreign and coastwise trade, not including fishing vessels: 1889 to 1906.*[1]

YEAR ENDING JUNE 30—	Total (tons).	Foreign (tons).	Coastwise (tons).
1889	4,211,035	999,619	3,211,416
1890	4,337,497	928,062	3,409,435
1891	4,598,595	988,719	3,609,876
1892	4,678,397	977,624	3,700,773
1893	4,737,892	883,199	3,854,693
1894	4,595,974	899,698	3,696,276
1895	4,551,061	822,347	3,728,714
1896	4,620,129	829,833	3,790,296
1897	4,689,696	792,870	3,896,826
1898	4,685,915	726,213	3,959,702
1899	4,802,542	837,229	3,965,313
1900	5,103,311	816,795	4,286,516
1901	5,462,240	879,595	4,582,645
1902	5,731,949	873,235	4,858,714
1903	6,020,301	879,264	5,141,037
1904	6,223,792	888,628	5,335,164
1905	6,385,438	943,750	5,441,688
1906	6,602,510	928,466	5,674,044

[1] Statistical Abstract of the United States, 1906, page 604.

PASSENGERS.

While the majority of the vessels included in the class of "freight and passenger" make a specialty of freight traffic, a considerable proportion of the gross earnings for the entire fleet is derived from the passenger service. During 1906 the income from this source amounted to $43,645,365, or 14.8 per cent of the annual gross earnings for all craft.

TABLE 45.—*Number of passengers, by divisions: 1906 and 1889.*

DIVISION.	Census.	NUMBER OF PASSENGERS. Total.	Ferry.	All other.
Total	1906	366,825,663	330,737,639	36,088,024
	1889	198,992,438	182,033,991	16,958,447
Per cent of increase		84.3	81.7	112.8
Atlantic coast and Gulf of Mexico	1906	292,555,416	272,596,670	19,958,746
	1889	170,225,458	158,644,012	11,581,446
Per cent of increase		71.9	71.8	72.3
Pacific coast (including Alaska)	1906	44,189,971	39,532,354	4,657,617
	1889	15,672,093	14,291,859	1,380,234
Per cent of increase		182.0	176.6	237.5
Great Lakes and St. Lawrence river	1906	14,080,146	8,264,482	5,815,664
	1889	2,235,993	623,474	1,612,519
Per cent of increase		529.7	1,225.6	260.7
Mississippi river and its tributaries	1906	14,122,241	10,022,612	4,099,629
	1889	10,858,894	8,474,646	2,384,248
Per cent of increase		30.1	18.3	71.9
All other inland waters	1906	1,877,889	321,521	1,556,368
	1889	(1)	(1)	(1)

[1] Not reported.

The 330,737,639 passengers carried by ferryboats during 1906 formed over nine-tenths of the total number carried by all classes of vessels, and the percentage of such passengers was somewhat less than in 1889. The greatest actual increase, 148,703,648, is shown for this class of passengers, but the largest percentage of increase, 112.8, occurred in the other class of passengers, which includes excursionists.

It would be of considerable interest if it were possible to ascertain from the returns the number of passengers that traveled by water for pleasure as distinguished from those traveling for business or other purposes, but such information could only be obtained from the individual passenger, and it would be impossible to secure the statistics in connection with a general census. It seems safe to assert, however, that, exclusive of ferry passengers, much the larger proportion of passengers is composed of summer excursionists taking short trips solely for pleasure.

Practically all the passengers reported were carried on steam passenger and ferry boats, but some were reported by vessels that were not engaged regularly in the passenger and freight business, such as tugboats, sailing vessels, and unrigged craft of various kinds. These passengers, altogether, numbered 785,447, of which 24,915 were carried on sailing vessels, and 760,532 on unrigged craft, towboats, etc.

The Atlantic coast and Gulf of Mexico is by far the most important district in the number of passengers, due in a large degree to the enormous number of ferry passengers carried about New York city and to the coastwise passenger traffic from this port. Large numbers of ferry passengers were also reported for Philadelphia and Boston. Passenger traffic on the Pacific coast, which is second in importance, centers in San Francisco bay, and is made up largely of ferry passengers in that neighborhood and of regular passengers to Portland, Seattle, and other coast cities.

In commenting on the statistics for passengers carried on the Great Lakes the report for 1889 states that "the figures of passenger traffic are interesting as far as they go, but it must be confessed that the returns were not made with that scrupulous care which characterized the schedule reports of traffic and equipment." It is evident from this that the statistics for that division are defective; presumably the full number was not reported, and the large percentage of increase, especially in ferry passengers, should not be accepted as representing the actual increase. The passenger service on these waters has, however, increased rapidly, probably in a greater ratio than for any other division.

In the annual reports of the United States Steamboat Inspection Service the number of passengers carried is reported for the various inspection districts, and the number reported by that office for the United States by all the vessels subject to its supervision in 1906 is 357,794,491. The different methods followed in collecting the statistics, and the fact that they were collected at different times, account in part for the discrepancy of about 9,000,000 between these totals. But the statistics for many vessels are necessarily estimates, and it is seldom that the same total can be obtained when compiled from different sources of information or at different times.

The tabulation of the census figures was not made with the idea of localizing the statistics of passenger traffic, but in a measure this is done in the reports of the Steamboat Inspection Service. Table 46, prepared from that source, presents the figures reported by the local inspectors for several of the more important inspection districts for 1906.

TABLE 46.—*Passengers reported for the principal districts of the United States Steamboat Inspection Service: 1906.*[1]

LOCAL INSPECTION DISTRICT.	Number of passengers.
Total	357,794,491
New York, N. Y.	213,575,838
San Francisco, Cal.	35,482,941
Philadelphia, Pa.	32,228,294
Boston, Mass.	17,605,329
Detroit, Mich.	7,403,154
Norfolk, Va.	5,964,799
New Orleans, La.	4,030,718
Albany, N. Y.	3,840,186
Baltimore, Md.	3,702,873
Seattle, Wash.	3,170,452
St. Louis, Mo.	2,900,233
Providence, R. I.	2,785,293
Portland, Me.	2,372,900
Portland, Oreg.	2,318,850
Chicago, Ill.	1,818,194
Cincinnati, Ohio	1,649,038
Toledo, Ohio	1,565,056
New London, Conn.	1,335,745
Point Pleasant, W. Va.	1,297,152
Dubuque, Iowa	1,053,115
Duluth, Minn.	1,051,074
All other	10,583,257

[1] Annual report of the Steamboat Inspector-General.

IDLE VESSELS.

Craft that were not in operation during any portion of the year 1906 were considered as idle. Many of these craft are carried on the records of the Bureau of

Navigation of the Department of Commerce and Labor, but in this report the statistics for them are not included with those for the active craft. As the collection of data for idle craft was merely incident to the census, the enumeration of them was not as thorough as that of the active craft.

TABLE 47.—*Idle vessels: 1906.*

DIVISION AND CLASS.	Number of vessels.	Gross tonnage.	Value of vessels.
Total	1,762	179,326	$10,511,363
Steam	830	99,897	8,735,852
Sail	565	20,014	936,890
Unrigged	367	59,415	838,621
Atlantic coast and Gulf of Mexico	1,074	87,254	6,895,147
Steam	450	49,131	5,801,871
Sail	475	11,971	780,405
Unrigged	149	26,152	312,871
Pacific coast (including Alaska)	252	28,229	2,062,793
Steam	145	21,994	1,851,731
Sail	43	1,391	69,935
Unrigged	64	4,844	141,127
Great Lakes and St. Lawrence river	197	41,437	1,049,969
Steam	117	23,639	758,930
Sail	46	6,642	85,550
Unrigged	34	11,156	205,489
Mississippi river and its tributaries	171	15,038	310,685
Steam	100	4,482	256,220
Sail			
Unrigged	71	10,556	54,465
Canals and other inland waters of New York state	32	5,121	128,869
Steam	9	330	28,600
Sail	1	10	1,000
Unrigged	22	4,781	99,269
All other inland waters	36	2,247	63,900
Steam	9	321	38,500
Sail			
Unrigged	27	1,926	25,400

The majority of the 1,762 idle craft enumerated were small and comparatively unimportant. The average tonnage per vessel for the entire number was 102 as compared with an average of 345 tons for the active vessels.

Income or earnings can not be considered a factor in estimating the value of idle craft, and the amount reported is necessarily an arbitrary value fixed by the owner. The average value per vessel was $5,966 as compared with $13,611 for active craft.

The comparatively large number of steam vessels reported as idle is due partly to the fact that they are of greater value than the sail or the unrigged vessels, not easily convertible into vessels of another character, and because of machinery and furnishings more liable to deterioration, hence when they go out of commission or suspend operations they are preserved so that they can be put into use again later. Steam vessels, too, were more easily located by the Census agents than were those of the other classes, which are more often laid up in waters that would not be visited for the purpose of finding active vessels, and therefore it is possible that more of them were missed in the canvass.

Another reason why the number of sail and unrigged craft reported as idle was not so great as for steam vessels, is the fact that these smaller craft of the first two classes, which have been idle for an entire year, are more liable to be considered as abandoned and therefore not included in the statistics.

PORTO RICO AND THE HAWAIIAN ISLANDS.

The statistics for the local shipping of these islands are not included in the totals for the United States, but are shown separately in Table 48.

TABLE 48.—VESSELS OPERATING LOCALLY AT PORTO RICO AND THE HAWAIIAN ISLANDS: 1906.

	PORTO RICO.				HAWAIIAN ISLANDS.			
	Total.	Steam.	Sail.	Unrigged.	Total.	Steam.	Sail.	Unrigged.
Number of vessels	205	4	43	158	52	26	10	16
Gross tonnage	5,566	94	905	4,567	10,682	8,828	592	1,262
Value of vessels	$180,519	$29,200	$43,175	$108,144	$1,204,100	$1,142,250	$16,900	$44,950
Gross income	$227,031	$7,600	$42,258	$177,173	$1,488,090	$1,424,702	$12,042	$51,346
Number of employees	603	16	132	455	767	685	43	39
Wages	$121,533	$5,381	$24,861	$91,291	$428,679	$401,215	$9,044	$18,420
Number of passengers carried	2,400	.....	2,400	.....	75,614	75,614	.....	.....
Freight carried (net tons)	24,120	.....	24,120	.....	380,811	373,755	7,056	.....

As the statistics for the craft covered by Table 48 were collected entirely by correspondence, the canvass was not as thorough as it was for other districts. In addition to the probability that some active craft failed to make reports, it is apparent that the statistics of income, employees, wages, passengers, and freight for the craft that did report are not complete.

CONDITIONS BETWEEN CENSUS YEARS.

All comparisons of data in this report relate to the conditions during two periods of twelve months each which are sixteen years apart. While these comparisons show that as a whole the American tonnage was very much larger in 1906 than it was in 1889, it does not follow that a constant increase was maintained from year to year in the number and tonnage of vessels. The most accurate information concerning the annual increase or decrease is contained in the reports of the Bureau of Navigation, Department of Commerce and Labor, which statistics for the registered, enrolled, and licensed vessels are reproduced in Table 49.

TABLE 49.—NUMBER AND GROSS TONNAGE OF REGISTERED, ENROLLED, AND LICENSED SAIL AND STEAM VESSELS CONSTITUTING THE TOTAL MERCHANT MARINE OF THE UNITED STATES, INCLUDING FISHING VESSELS: 1889 TO 1906.[1]

YEAR.	TOTAL MERCHANT MARINE.							ENROLLED AND LICENSED VESSELS, UNDER 20 TONS.							REGISTERED VESSELS.					
	Total.			Sail.[2]		Steam.		Total.			Sail.[2]		Steam.		Total.			Sail.[3]		Steam.	
	Number of vessels.	Gross tonnage.	Annual increase in tonnage (per cent).	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Annual increase in tonnage (per cent).	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.	Annual increase in tonnage (per cent).	Number of vessels.	Gross tonnage.	Number of vessels.	Gross tonnage.
1906	25,006	6,674,969	3.4	15,506	2,699,682	9,500	3,975,287	23,565	5,735,483	4.2	14,471	2,351,481	9,094	3,384,002	1,441	939,486	[4] 1.6	1,035	348,201	406	591,285
1905	24,081	6,456,543	2.6	15,784	2,715,049	8,897	3,741,494	23,309	5,502,030	2.0	14,792	2,361,716	8,517	3,140,314	1,372	954,513	6.2	992	353,333	380	601,180
1904	24,558	6,291,535	3.4	16,095	2,696,117	8,463	3,595,418	23,354	5,392,767	3.7	15,239	2,351,505	8,115	3,041,262	1,204	898,768	1.1	856	344,612	348	554,156
1903	24,425	6,087,345	5.0	16,371	2,679,257	8,054	3,408,088	23,255	5,198,569	5.8	15,558	2,317,891	7,697	2,880,678	1,170	888,776	0.7	813	361,366	357	527,410
1902	24,273	5,797,902	5.0	16,546	2,621,028	7,727	3,176,874	23,047	4,915,347	6.0	15,661	2,197,298	7,386	2,718,049	1,226	882,555	[4] 0.7	885	423,730	341	458,825
1901	24,057	5,524,218	7.0	16,643	2,603,265	7,414	2,920,953	22,730	4,635,089	6.8	15,671	2,143,858	7,059	2,491,231	1,327	889,129	7.6	972	459,407	355	429,722
1900	23,333	5,164,839	6.2	16,280	2,507,042	7,053	2,657,797	22,003	4,338,145	8.0	15,288	2,021,090	6,715	2,316,455	1,330	826,694	[4] 2.5	992	485,352	338	341,342
1899	22,728	4,864,238	2.4	15,891	2,388,227	6,837	2,476,011	21,397	4,015,992	0.1	14,927	1,900,011	6,470	2,115,981	1,331	848,246	15.0	964	488,216	367	360,030
1898	22,705	4,749,738	[4] 0.4	15,993	2,377,815	6,712	2,371,923	21,569	4,012,029	1.2	15,169	1,934,170	6,400	2,077,859	1,136	737,709	[4] 8.4	824	443,645	312	294,064
1897	22,633	4,769,020	1.4	16,034	2,410,462	6,599	2,358,558	21,403	3,963,436	2.7	15,051	1,863,352	6,352	2,100,084	1,230	805,584	[4] 4.7	983	547,110	247	258,474
1896	22,908	4,703,880	1.5	16,313	2,396,672	6,595	2,307,208	21,651	3,858,926	1.6	15,300	1,816,600	6,351	2,042,326	1,257	844,954	0.8	1,013	580,072	244	264,882
1895	23,240	4,635,960	[4] 1.0	16,686	2,423,159	6,554	2,212,801	21,980	3,797,773	0.8	15,665	1,837,017	6,315	1,960,756	1,260	838,187	[4] 8.5	1,021	586,142	239	252,045
1894	23,586	4,684,029	[4] 2.9	17,060	2,494,599	6,526	2,189,430	22,236	3,767,849	[4] 4.0	15,956	1,844,510	6,280	1,923,339	1,350	916,180	1.8	1,104	650,089	246	266,091
1893	24,512	4,825,071	1.3	17,951	2,641,799	6,561	2,183,272	23,169	3,925,268	4.1	16,857	2,003,099	6,312	1,922,169	1,343	899,803	[4] 9.5	1,094	638,700	249	261,103
1892	24,383	4,764,921	1.7	17,991	2,690,504	6,392	2,074,417	22,851	3,770,246	2.5	16,713	1,924,728	6,138	1,845,518	1,532	994,675	[4] 1.1	1,278	765,776	254	228,899
1891	23,899	4,684,759	5.9	17,683	2,668,495	6,216	2,016,264	22,312	3,678,809	5.8	16,367	1,902,540	5,945	1,776,269	1,587	1,005,950	6.3	1,316	765,955	271	239,995
1890	23,467	4,424,497	2.7	17,502	2,565,409	5,965	1,859,088	21,940	3,477,802	5.8	16,208	1,816,344	5,732	1,661,458	1,527	946,695	[4] 7.3	1,294	749,065	233	197,630
1889	23,623	4,307,475	.....	17,699	2,541,924	5,924	1,765,551	21,942	3,285,880	.....	16,237	1,714,801	5,705	1,571,079	1,681	1,021,595	.....	1,462	827,124	219	194,471

[1] From the reports of the Commissioner of Navigation, Department of Commerce and Labor.
[2] Including canal boats and barges.
[3] Including barges.
[4] Decrease.

The figures for twelve of the years shown in Table 49 represent an increase over the preceding year in the number of vessels constituting the merchant marine, while the figures for five of the years represent a decrease. The largest percentages of increase occurred in 1900 and 1901. With the exception of three years, the tonnage increased over that of the preceding year. To this increase steam vessels have contributed most largely, as the tonnage of the sailing vessels shows an actual decrease during many years.

The enrolled and licensed vessels, which engage in trade on the coasts and inland waters, form the largest proportion of the merchant marine. In 1889 the tonnage of these vessels formed 76.3 per cent of the total, and this proportion has been increasing almost constantly each year until 1906, when it amounted to 85.9 per cent. With the exception of one year, 1894, there has been an actual increase each year in their tonnage.

Registered vessels are engaged primarily in foreign trade, and it is among this class of craft that the greatest decreases have occurred in both number and tonnage. The decrease, however, is in the sailing vessels, as the number and tonnage of the steam craft is larger in 1906 than in 1889. Not only has the proportion which registered vessels formed of the total merchant marine decreased, but during nine of the years there was an actual decrease in their tonnage. In 1906 as compared with 1889 there was a decrease of 240 in the number of these vessels and of 82,109 in their tonnage. The smallest registration, 737,709 tons, was reported for 1898, since which date there has been a slight increase except in 1900, 1902, and 1906. The largest registration reported for the period covered by the table, 1,021,595 tons, is shown for 1889.

In this connection it is interesting to know that 1,183 vessels, of 941,864 tonnage, valued at $87,503,676, reported to the Census that they carried freight to or from foreign ports during all or a portion of the year 1906. This, however, does not include the vessels operating on the Great Lakes, considerable numbers of which touch at Canadian ports, but it does include 523 canal boats, of 55,034 tonnage, valued at $584,190, which operate on the Champlain canal and Lake Champlain and visit ports in Canada. Of the 1,183 vessels, 489, of 538,082 tonnage, valued at $52,329,924, operated on the Atlantic coast, and 171, of 348,748 tonnage, valued at $34,589,562, on the Pacific coast.

CANAL BOATS.

For the purpose of this report all boats operated by the use of machinery have been included in the group of steam vessels, which therefore includes some ordinarily classed as canal boats. With this exception, the statistics for canal boats given in Table 50 represent all craft commonly known as such, although they may have been actually employed on canals during only a portion of the year 1906.

At the census of 1906 reports were secured for canal boats, irrespective of the waters in which they operated. In 1889 reports for such boats were secured in connection with other information obtained for the operations of the canals from the canal commissioners and other officers who have general supervision of the canal property. Comparative statistics are given in Table 60, which represents the floating equipment as reported by the officials in charge of the various canals. A comparison of the available data indicates that the number and tonnage of canal boats have been constantly decreasing. More than three-

fifths of them are now operated on the canals and other waters of New York state. Numbers of these boats winter in New York harbor, and are used for conveying freight on the surrounding waters and between points on the coast. The 8 canal boats reported for the Great Lakes and the Mississippi river are used as harbor barges and could properly be classed as such.

TABLE 50.—*Canal boats, by divisions: 1906.*[1]

DIVISION.	Number of vessels.	Gross tonnage.	Value of vessels.	Gross income.	Number of employees.	Wages.
Total	[2]2,237	303,581	$2,952,197	$3,338,347	2,772	$1,015,591
Atlantic coast and Gulf of Mexico	663	103,877	1,112,475	943,552	652	281,599
Great Lakes and St. Lawrence river	6	1,134	13,800	7,790	15	2,801
Mississippi river and its tributaries	2	323	4,100	12,500	8	2,000
Canals and other inland waters of New York state	1,364	173,388	1,583,835	2,049,277	1,582	588,672
All other inland waters	202	24,859	237,987	325,228	515	140,519

[1] This table does not include steam canal boats.
[2] Does not include 49 boats with 5,745 gross tonnage that were idle during the entire year.

There were 138 steam canal boats reported at the census of 1889, of 14,676 tonnage, valued at $453,000. The statistics for steam craft of this class as reported for the census of 1906 are presented in Table 51.

TABLE 51.—*Steam vessels operating on canals: 1906.*

	1906
Number of vessels	84
Gross tonnage	7,280
Value of vessels	$418,800
Gross income	$370,101
Number of employees	362
Wages	$145,701
Freight carried (net tons)	189,522

There has been a decided decrease in the number of canal boats since the census of 1889, and while it is possible that the number propelled by steam decreased from 138 to 84, it may be that some boats of this class which operated on canals and also on other waters were classed as canal boats in 1889 but as steam vessels other than canal boats in 1906. The figures for the two censuses should therefore not be used to show the increase or decrease.

CANALS AND CANALIZED RIVERS.

In connection with the statistics for canal boats it is important to present information for the waters on which they are operated. For convenience the data for canals and canalized rivers will be considered as representing one general group. Canals may be divided into three classes, according as they are owned and operated by the Federal Government, by state governments, or corporations.

Canalized rivers are streams which have been made navigable, or on which navigation has been improved, by the construction of locks or dams. In all instances, except on the Illinois river at Henry and Copperas creek, the locks on the canalized rivers are owned and operated by the Federal Government, which either constructed or purchased them. While most of the state and corporation canals are used only for the transportation of freight in canal boats, the Government canals are all ship canals and the canalized rivers are classed as such.

All data in this report relative to canals or canalized rivers operated by the Federal Government are for the fiscal year ending June 30, unless otherwise noted, and were obtained from the annual reports of the chief of engineers of the United States Army; those for state and corporation canals are for the calendar year and were obtained directly from the canal officials.

TABLE 52.—*Number, mileage (including slack water), and cost of canals and canalized rivers in the United States: 1906, 1889, and 1880.*

	Total.	State and corporation canals.	Government canals.	Canalized rivers.
Number:				
1906	64	29	12	23
1889	67	37	9	21
1880	52	39	2	11
Mileage:				
1906	3,644.60	2,046.01	78.19	1,520.40
1889	3,383.27	2,264.60	40.63	1,078.04
1880	3,235.78	2,746.18	10.00	479.60
Cost:				
1906	$283,208,863	$213,797,297	$26,524,588	$42,886,978
1889	188,185,880	150,481,825	20,517,133	17,186,922
1880	183,952,302	167,205,810	7,832,009	8,914,483

While there has been a decrease of 700.17 miles since 1880 in the mileage of canals operated under state and corporation ownership, the mileage of canals owned by the Federal Government increased 68.19 miles, and that of canalized rivers 1,040.80 miles. The net increase in mileage of canals and canalized rivers in 1906 over 1880 is 408.82 miles. In order, however, to show the total increase since the latter census, the mileage of canals abandoned since 1880 should be considered.

TABLE 53.—*Length and cost of abandoned canals and canalized rivers: 1906, 1889, and 1880.*

	Length (miles).	Cost of construction and improvement.
Total	2,841.27	$73,168,795
Abandoned canals up to 1880	1,953.56	44,013,166
Abandoned canals, 1880 to 1889	261.69	7,157,850
Abandoned canals, 1889 to 1906	626.02	21,997,779

The mileage of canals and canalized rivers abandoned since 1880 amounts to 887.71 miles, which, added to the 408.82 miles of increase given in Table 52, shows an increase of 1,296.53 miles of canals or canalized rivers operated since 1880.

Between 1889 and 1906 there were 626.02 miles of canals and canalized rivers abandoned, while the in-

crease in mileage shown in Table 52 amounts to 261.33, indicating an increase of 887.35 miles of canals or canalized rivers operated since the Eleventh Census. In 1889, however, the Chesapeake and Ohio canal, built and enlarged during the period from 1828 to 1850, with a length of 186 miles, inclusive of 5 miles of slack water, was omitted, as the canal was not operated during that year. The actual increase in mileage, therefore, in 1906 over 1889 would be but 701.35 miles.

Since 1880 there has been a large decrease in the mileage of canals operated by states or corporations, and an increase in the mileage of Government canals and canalized rivers which, with the exceptions already mentioned, are controlled by the Federal Government.

Of the 626.02 miles of canals and canalized rivers abandoned since the Eleventh Census, 522.32 mileswere state or corporation canals and 103.70 miles canalized rivers.

TABLE 54.—*Name, length, and cost of construction of canals and canalized rivers abandoned between 1889 and 1906.*

STATE AND NAME.	Length (miles).	Cost to and including 1889.
Aggregate	626.02	$21,997,779
State and corporation canals	522.32	21,045,950
New York:		
Erie and branches (part)	26.26	.....
Delaware and Hudson (part)	102.00	6,274,210
New Jersey:		
Penns Neck	2.02	41,000
Pennsylvania:		
Pennsylvania	193.00	7,731,750
Susquehanna and Tidewater	45.00	4,931,345
Muncy	0.75	7,077
Schuylkill Navigation Company (part)	18.35	.....
Virginia:		
Albemarle and Chesapeake (part)	29.94	.....
Dismal Swamp (part)	6.00	.....
North Carolina:		
Fairfield (part)	0.50	.....
Illinois:		
Illinois and Michigan (part)	6.00	.....
Georgia:		
Ogeechee	16.00	407,818
Florida:		
Santa Fe	10.50	70,000
Ohio:		
Walhonding	19.00	607,269
Hocking	42.00	975,481
Miami and Erie (part)	5.00	.....
Canalized rivers	103.70	951,829
Maine:		
Songo	7.00	20,000
New York:		
Black	42.50	.....
Oneida	20.00	368,164
Seneca	7.70	.....
Pennsylvania:		
Beaver	6.00	19,000
Virginia:		
Upper Appomattox	11.50	388,617
Wisconsin:		
Chippewa	9.00	156,048

The cost of the improvements abandoned between 1889 and 1906 for which cost is shown amounted to $21,997,779. This sum is low, however, as the cost of abandoned portions, which can not be estimated, must have been considerable.

The cost of the canals and canalized rivers in operation in 1906 amounted to $283,208,863, and the cost of similar improvements abandoned up to that year was $73,168,795, making a grand total of $356,377,658 expended by the Federal Government, by states, or corporations, on canals or the canalization of rivers.

The comparatively small increase in mileage and cost between 1880 and 1889 is probably due to the exclusion in the latter year of the Chesapeake and Ohio canal. The inclusion at the present census of this canal, as well as the Chicago Drainage and Ship canal, which was only completed in 1900, accounts in a great measure for the large increase in cost of these public waterways in 1906 as compared with 1889. The Chesapeake and Ohio canal is reported as having cost, with improvements, $14,000,000, and the Chicago Drainage and Ship canal $52,697,495.

For none of the Government canals or the canalized rivers under Government control is any income or expense account shown, although both classes of waterways require an expenditure for maintenance. For the fiscal year ending June 30, 1906, the amount allotted under the permanent indefinite appropriation, provided by the act of July 5, 1884, for the care and maintenance of Government canals and canalized rivers was $1,108,710. No tolls were charged on the waterways under Federal control. Neither are any tolls charged on the canals owned and operated by the state of New York. The canals of New York state were maintained by taxation and the charge for maintenance for the fiscal year ending September 30, 1906, amounted to $1,191,171.

Of the remaining 24 canals under state or corporation ownership, 3, the Chicago Drainage and Ship canal, the Newbern and Beaufort canal, and the Morris and Cummings canal, did not report any income or expenditure for 1906, and such items for the Illinois and Michigan canal could not be separated from the records for the locks on the Illinois river at Henry and Copperas creek, which are operated by the state of Illinois. The 20 canals which did report income and expense derived a total revenue of $1,235,608 and were operated at a cost of $1,281,361.

TABLE 55.—*Tons of freight carried on state and corporation canals, Government canals, and canalized rivers: 1906, 1889, and 1880.*

[The figures in this table represent the freight tonnage carried on the canals of the United States, each canal being regarded as a single unit.]

CLASS.	1906	1889	1880
Total	122,434,405	48,668,325	21,044,292
State and corporation canals	6,606,814	13,269,600	16,304,323
Government canals	96,729,333	28,904,209	1,244,279
Canalized rivers	19,098,258	6,494,516	3,495,690

The amount of freight carried on the canals and canalized rivers in 1906 exceeded that carried in 1889 by 73,766,080 tons, or 151.6 per cent, and exceeded that carried in 1880 by 101,390,113 tons, or 481.8 per cent.

While there is a decrease of 50.2 per cent since 1889 and of 59.5 per cent since 1880 in the amount of freight

carried on state and corporation canals, the increased tonnage carried on Government canals amounted to 234.7 per cent more than in 1889 and 7,673.9 per cent more than in 1880, and that carried on canalized rivers was 194.1 per cent greater than in 1889 and 446.3 per cent greater than in 1880.

Of all the freight, a little over 75 per cent passed through the St. Clair Flats canal, which connects Lake St. Clair with the St. Clair river, and the St. Marys Falls canal, which connects Lake Superior with Lake Huron. These two canals are controlled and operated by the Federal Government.

There is necessarily a duplication in the total quantity of freight carried on all canals; for example, a large proportion of the freight reported for the St. Marys Falls canal is included in the report for the St. Clair Flats canal and duplicated when the totals for the canals are combined.

In 1906 the freight tonnage passing through the St. Clair Flats canal aggregated 51,359,071 tons, an increase over 1889 of 160.5 per cent. The freight tonnage carried through the canal around St. Marys Falls in 1880 was only 1,244,279 tons; in 1889 it amounted to 7,516,022 tons; while in 1906 it was 41,276,862 tons, or 3,217.3 per cent greater than in 1880 and 449.2 per cent more than in 1889.

TABLE 56.—*Net tonnage of vessels and total freight passing through both American and Canadian canals at Sault Ste. Marie: 1895 to 1906.*[1]

YEAR.	Net registered tonnage.	Total freight (tons).
1906	37,570,191	46,015,016
1905	36,617,699	44,270,680
1904	24,364,138	31,546,106
1903	27,736,444	34,674,437
1902	31,955,582	35,961,146
1901	24,626,976	28,403,065
1900	22,315,834	25,643,073
1899	21,958,347	25,255,810
1898	18,622,754	21,234,664
1897	17,619,933	18,982,755
1896	17,249,418	16,239,061
1895	16,806,781	15,062,580

[1] This table is compiled from the annual report of the Chief of Engineers of the United States Army, for the fiscal year ending June 30, 1906.

The American canal at Sault Ste. Marie was first opened to navigation in 1855, and during that year the vessels passing through the canal carried 14,503 tons of freight. Up to 1895 the freight that passed through the canal amounted to 101,244,462 tons, while from 1895 to 1906 it amounted to 343,288,393 tons, making a grand total of 444,532,855 tons of freight from the opening in 1855 to June 30, 1906.

TABLE 57.—*Net tons of freight carried on ship canals and all other canals: 1906, 1889, and 1880.*

[The figures in this table represent the freight tonnage carried on the canals of the United States, each canal being regarded as a single unit.]

	1906	1889	1880
Total	122,434,405	48,668,325	21,044,292
Ship canals	118,114,267	38,905,820	5,076,391
All other	4,320,138	9,762,505	15,967,901

Of the total freight carried on canals during 1880, 24.1 per cent was transported on ship canals and 75.9 per cent on other canals; in 1889 the corresponding figures were 79.9 per cent and 20.1 per cent; in 1906 they were 96.5 per cent and 3.5 per cent. These figures show the decrease in the transportation of freight in canal boats and the tendency to use ship canals through which larger vessels can pass rather than the old style towpath canal of narrow width and little depth.

TABLE 58.—*Net tonnage of vessels on St. Marys Falls, Suez, and Kaiser Wilhelm canals: 1895 to 1906.*[1]

ST. MARYS FALLS.[2]		SUEZ.		KAISER WILHELM.	
Calendar year.	Net tonnage.	Calendar year.	Net tonnage.	Year ending March 31—	Net tonnage.[3]
1895	16,806,781	1895	8,448,383	1895	
1896	17,249,418	1896	8,560,284	1896	[4]1,505,983
1897	17,619,933	1897	7,899,374	1897	1,848,458
1898	18,622,754	1898	9,238,603	1898	2,469,795
1899	21,958,347	1899	9,895,630	1899	3,117,840
1900	22,315,834	1900	9,738,152	1900	3,488,767
1901	24,626,976	1901	10,823,840	1901	4,282,094
1902	31,955,582	1902	11,248,413	1902	4,285,301
1903	27,736,444	1903	11,907,288	1903	4,573,834
1904	24,364,138	1904	13,401,835	1904	4,990,287
1905	36,617,699	1905	13,132,694	1905	5,270,477
1906	41,098,324	1906	13,443,392	1906	5,796,949

[1] The figures for this table are compiled from the Monthly Summary of Commerce and Finance of the United States, Bureau of Statistics, Department of Commerce and Labor, from the reports of the British Statistical Department, Ministry of Finance, and from the Quarterly Statistical Reports of Germany.
[2] Traffic through the Canadian canal is included in these figures.
[3] Not including German war vessels and vessels of the canal administration.
[4] Covers July 1, 1895, to June 30, 1896 (the first year after opening).

Although the Suez canal is usually considered the most important example of ship canals, the net tonnage of vessels passing through it is much less than that of vessels passing through St. Marys Falls canal. In 1906 the net tonnage of vessels passing through St. Marys Falls canal was over three times as great as that for the Suez canal, and over seven times as great as that for the Kaiser Wilhelm, or Kiel, canal. This is all the more remarkable in consideration of the fact that while the Suez and Kiel canals are open for the entire year, the St. Marys Falls canal, because of the severity of the winter, is open to traffic for only about eight months. The St. Marys Falls canal is also remarkable because of its short length, number of locks, and immense traffic.

TABLE 59.—*Dimensions and cost of construction of Suez, Manchester, Kaiser Wilhelm, and St. Marys Falls canals.*[1]

CANAL.	Length (miles).	Depth (feet).	Locks (number).	Cost.
Suez	90.0	31.0		$100,000,000
Manchester	35.5	26.0	4	75,000,000
Kaiser Wilhelm	61.0	29.5	[2]2	40,000,000
St. Marys Falls	2.7	25.0	3	[3]13,000,000

[1] The figures for this table are compiled from the Monthly Summary of Commerce and Finance of the United States for January, 1905, Bureau of Statistics, Department of Commerce and Labor.
[2] Tidal locks.
[3] Includes cost of Canadian lock and approaches, which was obtained from the annual report of the Chief of Engineers of the United States Army for the fiscal year ending June 30, 1906.

No reliable data were obtainable as to the number, tonnage, or valuation of boats using the waterways

classed as ship canals. Table 60 shows such data only for those canals operated in 1906 on which the freight is transported by canal boats and which are all under state or corporation ownership.

TABLE 60.—*Floating equipment—number, tonnage, and valuation of canal boats on other than ship canals: 1906 and 1889.*

CANAL.	1906			1889		
	Number.	Tonnage.	Valuation.	Number.	Tonnage.	Valuation.
Total	(1)	465,515	(1)	5,544	808,058	$4,823,625
Chesapeake and Ohio	120	13,920	$84,000	(2)	(2)	(2)
Morris	(3)	(3)	(3)	314	24,120	92,275
Delaware and Hudson	18	2,700	18,000	750	105,000	681,500
Erie						
Oswego	(1)	358,905	(1)	1,743	406,061	2,403,500
Cayuga and Seneca						
Champlain	540	54,000	648,000	954	97,597	893,450
Black River	63	6,300	77,331	110	10,345	94,950
Ohio						
Miami and Erie	(3)	(3)	(3)	275	22,000	82,500
Lehigh Coal and Navigation Company	127	15,500	63,000	1,273	120,935	509,200
Schuylkill Navigation Company	42	6,190	30,200	125	22,000	66,250

[1] The number and valuation of boats operating on the Erie, Oswego, Cayuga and Seneca canals were not reported and therefore no total could be made for these items.
[2] Not in operation in 1889.
[3] Did not report floating equipment in 1906.

Of the 12 canals for which floating equipment is shown, 7 are operated by the states in which they are located and 5 by corporations. The great decrease in the number, tonnage, and valuation of the boats using these canals in 1906 as compared with 1889 is due to the decreased use of canals whose dimensions and locks do not permit boats of large tonnage to pass.

TABLE 61.—*Tons of freight carried on state and corporation canals, Government canals, and canalized rivers: 1906, 1889, and 1880.*[1]

CLASS, STATE, AND NAME.	1906	1889	1880
Aggregate	122,434,405	48,668,325	21,044,292
State and corporation canals	6,606,814	13,269,600	16,304,323
Government canals	96,729,333	28,904,209	1,244,279
Canalized rivers	19,098,258	6,494,516	3,495,690
State and corporation canals	6,606,814	13,269,600	16,304,323
New York	3,627,907	6,816,304	7,766,969
Erie and branches	2,385,491	3,673,554	4,608,651
Champlain	740,983	1,187,038	1,200,503
Oswego	172,228	170,078	427,863
Cayuga and Seneca	164,874	196,138	125,331
Black River	77,331	143,561	75,308
Delaware and Hudson	87,000	1,445,935	1,329,313
New Jersey	513,043	1,738,905	1,857,568
Delaware and Raritan	424,986	1,276,269	1,348,082
Morris	88,057	462,636	503,486
Penns Neck	(2)	(2)	6,000
Pennsylvania	294,979	1,359,665	2,607,535
Pennsylvania	(2)	423,073	861,798
Susquehanna and Tidewater	(2)	125,555	362,295
Schuylkill Navigation Co	54,354	219,697	630,416
Lehigh Coal and Navigation Co	240,625	591,340	719,338
Union	(2)	(2)	29,853
Muncy	(2)	(2)	3,835
Delaware			
Chesapeake and Delaware	683,086	736,879	959,146
Virginia	435,404	395,004	532,602
Albemarle and Chesapeake	95,269	316,793	400,000
Lake Drummond (Dismal Swamp)	340,135	78,211	6,731
Alexandria and Georgetown	(4)	(4)	125,931
North Carolina		2,124	40,000
Fairfield	(5)	2,124	40,000
Newbern and Beaufort	(5)	(5)	(5)
Georgia	7,004	40,392	23,602
Augusta	7,004	23,668	2,697
Ogeechee	(2)	16,724	20,905
Louisiana	683,900	293,070	318,096
New Basin	500,000	226,594	177,108
Old Basin	60,000	66,476	140,988
Harvey's	50,000	(2)	(2)
Company's	50,000	(2)	(2)
Secolas	(2)	(2)	(2)
Lake Borne	23,900	(5)	(5)
Ohio	84,052	1,107,176	791,962
Ohio and branches	8,818	129,398	429,626
Walhonding	(2)	948	3,309
Hocking	(2)	7,353	35,290
Miami and Erie	75,234	969,477	323,737
Illinois	6,470	742,391	751,360
Illinois and Michigan	6,470	742,391	751,360
Chicago Drainage and Ship	(2)	(5)	(5)
Maryland:			
Chesapeake and Ohio	225,143	(6)	655,423
Florida:			
Santa Fe	(2)	1,000	(2)
Oregon:			
Portland General Electric Co	43,826	36,690	(2)
Texas:			
Morris and Cummings	2,000	(2)	(2)
Government canals	96,729,333	28,904,209	1,244,279
Kentucky:			
Louisville and Portland	1,053,526	618,060	(2)
Iowa:			
Des Moines Rapids	8,520	794,280	(2)
Michigan	95,049,378	27,491,869	1,244,279
St. Marys Falls	41,276,862	7,516,022	1,244,279
Lake Superior[7]	2,413,445	[8]257,987	(2)
St. Clair Flats[7]	51,359,071	19,717,860	(2)
Illinois:			
Illinois and Mississippi	699	(5)	
Wisconsin:			
Sturgeon Bay and Lake Michigan	617,210	(2)	(2)
Texas:			
Port Arthur	(2)	(5)	
Galveston and Brazos	(2)	(2)	(2)
Morgan	(2)	(2)	(5)
South Carolina:			
Fenwicks Island	(2)	(5)	
Esterville-Minim Creek	(2)	(5)	
Canalized rivers	19,098,258	6,494,516	3,495,690
Pennsylvania	16,091,000	3,294,932	3,450,400
Monongahela-Pennsylvania and West Virginia	11,447,444	3,294,932	3,450,400
Ohio	3,247,753	(2)	(2)
Allegheny	1,395,803	(5)	(5)
Ohio:			
Muskingum[7]	50,668	10,281	45,290

[1] The figures relating to Government canals and canalized rivers were obtained from the report of the Chief of Engineers of the United States Army for the fiscal year ending June 30, 1906, and those for state and corporation canals directly from the canal officials.
[2] Abandoned since 1889.
[3] Not reported.
[4] Abandoned since 1880.
[5] Not opened.
[6] Canal not in operation in 1889.
[7] Fiscal year ending June 30, 1905.
[8] Includes Keweenaw Bay and Portage Lake canals.

TABLE 61.—*Tons of freight carried on state and corporation canals, Government canals, and canalized rivers: 1906, 1889, and 1880*—Continued.

CLASS, STATE, AND NAME.	1906	1889	1880
West Virginia	1,720,399	1,260,859	.....
Great Kanawha [1]	1,613,889	1,145,202	(2)
Little Kanawha [1]	106,510	115,657	(2)
Monongahela	(3)	(3)	(2)
Kentucky	729,428	1,076,228	.....
Kentucky [1]	201,510	256,950	(2)
Green and Barren	342,495	819,278	(2)
Big Sandy [1]	148,623	(4)	(2)
Rough	36,800	(5)	(5)
Illinois	33,178	180,264	.....
Illinois	24,943	180,264	(2)
Wabash	3,990	(5)	(5)
Galena	4,245	(5)	(5)
Wisconsin	263,589	671,952	.....
Fox [1]	263,589	346,475	(2)
Chippewa	(2)	325,477	(2)
South Carolina:			
Congaree	(2)	(5)	(5)
Arkansas:			
Upper White	7,999	(2)	(2)
Tennessee	136,805	.....	.....
Cumberland [1]	119,009	(2)	(5)
Muscle Shoals [1] (Tennessee)	17,796	(2)	(5)
Alabama	16,281	.....	.....
Black Warrior	16,281	(2)	(2)
Coosa	(4)	(2)	(2)
Oregon	48,911	.....	.....
Columbia	46,884	(2)	(2)
Yamhill	2,027	(5)	(5)

[1] Fiscal year ending June 30, 1905. [2] Not reported. [3] Included in data for this river in Pennsylvania. [4] Abandoned since 1889. [5] Not opened.

TABLE 62.—NUMBER, DIMENSIONS, DATE OF CONSTRUCTION, AND COST OF STATE AND CORPORATION CANALS, GOVERNMENT CANALS, AND CANALIZED RIVERS: 1906.[1]

CLASS, STATE, AND NAME.	Points connected.	Number of canals.	Opened for traffic.	LENGTH. Total (miles).	Canal (miles).	Slack water (miles).	WIDTH. Surface (feet).	Bottom (feet).	Depth (feet).	LOCKS. Number.	Length (feet).	Width (feet).	Cost of construction and improvement.
Aggregate		64	.....	3,644.60	2,022.88	1,621.72	.....	.....	.....	934	.....	.....	$283,208,863
State and corporation canals		29	.....	2,046.01	1,949.09	96.92	.....	.....	.....	784	.....	.....	213,797,297
Government canals		12	.....	78.19	73.79	4.40	.....	.....	.....	12	.....	.....	26,524,588
Canalized rivers		23	.....	1,520.40	.....	1,520.40	.....	.....	.....	138	.....	.....	42,886,978
State and corporation canals		29	.....	2,046.01	1,949.09	96.92	.....	.....	.....	784	.....	.....	213,797,297
New York		6	.....	549.90	539.90	10.00	.....	.....	.....	242	.....	.....	76,825,458
Erie and branches [2]	Albany-Buffalo	.....	1825	355.13	355.13	.....	70	56	7	72	110	18	65,402,033
Champlain [2]	Whitehall-Albany	.....	1822	81.00	73.00	8.00	50	35	5	23	110	18	
Oswego [2]	Oswego-Syracuse	.....	1828	38.00	38.00	.....	70	56	7	18	110	18	5,161,793
Cayuga and Seneca [2]	Montezuma-Geneva	.....	1839	24.77	22.77	2.00	70	56	7	10	110	18	2,232,632
Black River and feeders [2]	Rome-Lyons Falls	.....	1849	42.00	42.00	.....	42	28	4	109	90	15	3,964,000
Delaware and Hudson	Eddyville-High Falls	.....	1828	9.00	9.00	.....	50	30	7	10	100	15	65,000
New Jersey		3	.....	172.00	172.00	.....	.....	.....	.....	49	.....	.....	11,113,749
Delaware and Raritan [3]	New Brunswick-Bordentown.	.....	1838	44.00	44.00	.....	80	40	9	13	220	24	5,113,749
Delaware and Raritan feeder	Bull Island-Trenton	.....		22.00	22.00	.....	60	30	9	4	100	24	
Morris	Jersey City-Easton, Pa.	.....	1836	106.00	106.00	.....	50	30	5	32	95	20	6,000,000
Maryland: Chesapeake and Ohio	Washington, D. C.-Cumberland, Md.	1	1850	185.00	181.20	3.80	68	31	6	75	100	15	14,000,000
Pennsylvania		2	.....	197.88	146.26	51.62	.....	.....	.....	146	.....	.....	18,085,334
Schuylkill Navigation Co.	Philadelphia-Port Clinton	.....	1826	89.88	50.26	39.62	58	40	6	55	110	18	11,018,875
Lehigh Coal and Navigation Co.	Coalport-Easton-Bristol	.....	1821	108.00	96.00	12.00	44	18	6	91	100	22	7,066,459
Delaware: Chesapeake and Delaware [3]	Delaware river-Chesapeake bay.	1	1829	29.63	13.63	16.00	60	40	10	3	220	24	5,000,000
Virginia		2	.....	37.00	36.00	1.00	.....	.....	.....	3	.....	.....	4,452,849
Albemarle and Chesapeake [3]	Chesapeake bay-Albemarle sound.	.....	1860	14.00	14.00	.....	80	45	10	1	220	40	1,151,849
Lake Drummond (Dismal Swamp) [3]	Elizabeth river, Va.-Pasquotank river, N. C.	.....	1794	23.00	22.00	1.00	70	40	9	2	250	39	3,301,000

[1] The figures relating to Government canals and canalized rivers were obtained from the reports of the Chief of Engineers of the United States Army and those for state and corporation canals directly from the canal officials.
[2] State canal.
[3] Ship canal.

TABLE 62.—NUMBER, DIMENSIONS, DATE OF CONSTRUCTION, AND COST OF STATE AND CORPORATION CANALS, GOVERNMENT CANALS, AND CANALIZED RIVERS: 1906—Continued.

CLASS, STATE, AND NAME.	Points connected.	Number of canals.	Opened for traffic.	LENGTH.			WIDTH.		Depth (feet).	LOCKS.			Cost of construction and improvement.
				Total (miles).	Canal (miles).	Slack water (miles).	Surface (feet).	Bottom (feet).		Number.	Length (feet).	Width (feet).	
North Carolina		2		9.00	9.00								$95,000
Fairfield[1]	Fairfield and Alligator river.		1868	4.00	4.00		26	26	7				60,000
Newbern and Beaufort[1]	Clubfoot and Harlow creeks.		1882	5.00	5.00				5				35,000
Georgia:													
Augusta[1]	Augusta-Savannah river	1	1847	9.00	7.00	2.00	150	100	11	1	100	15	2,090,263
Louisiana		5		121.85	121.35	0.50				3			3,400,000
New Basin[1]	New Orleans-Lake Pontchartrain.		1835	7.50	7.00	0.50	100	90	9				2,000,000
Old Basin[1]	New Orleans-St. Johns bayou.		1794	7.00	7.00		60	40	7				150,000
Harvey's[1]	Mississippi river at New Orleans-Barataria bayou.		1830	5.35	5.35		70	65	6	1	184	30	400,000
Company's[1]	Mississippi river at New Orleans-Lafourche bayou.		1847	95.00	95.00		60	45	5.5	1	174	28	500,000
Lake Borne[1]	Mississippi river-Lake Borne.		1900	7.00	7.00		100	85	6	1	280	44	350,000
Texas:													
Morris and Cummings[1]	CorpusChristi-Aransas bay.	1	1873	9.00	9.00		100	60	8				125,000
Ohio		2		595.00	589.00	6.00				239			15,967,651
Ohio and branches[2]	Cleveland-Portsmouth		1835	326.00	326.00		40	26	4	144	90	15	7,904,971
Miami and Erie[2]	Toledo-Cincinnati		1835	269.00	263.00	6.00	50	35	5	95	90	15	8,062,680
Illinois		2		130.00	124.00	6.00				18			61,891,993
Illinois and Michigan[2]	Chicago-Lasalle		1848	96.00	96.00		60	30	8	1 17	110	48 18	9,194,498
Chicago Drainage and Ship[1]	Chicago-Lockport		1900	34.00	28.00	6.00	244	158	22				52,697,495
Oregon:													
Portland General Electric Co.[1]	Around Falls of Willamette river at Oregon City.	1	1873	0.75	0.75		75	55	6	5	210	40	750,000
Government canals		12		78.19	73.79	4.40				12			26,524,588
Michigan		3		10.54	10.54					2			13,282,305
St. Marys Falls	Around falls of St. Marys river.		1855	1.60	1.60		160		25	2	515 800	80 100	8,000,000
Lake Superior (including Keweenaw Bay and Portage Lake canals).	Lake Superior, Portage Lake, Keweenaw bay.		1873	7.75	7.75		120		20				4,246,728
St. Clair Flats	St. Clair river-Lake St. Clair.		1889	1.19	1.19				20				1,035,577
Illinois:													
Illinois and Mississippi	Around falls of Rock river, at Milan, Ill.	1	1895	4.50	4.50				7	3	170	35	547,230
Wisconsin:													
Sturgeon Bay and Lake Michigan Ship.	Sturgeon bay-Lake Michigan.	1	1881	1.36	1.36		160		21				504,596
Kentucky:													
Louisville and Portland	Around falls of Ohio river at Louisville.	1	1830	2.40	2.40				12	2 2	390 260	80 50	5,856,230
South Carolina		2		5.33	5.33								222,175
Fenwicks Island	South Edisto and Ashepoo rivers.		1906	0.33	0.33		90		7				50,000
Esterville-Minim Creek	Santee river-Winyah bay.		1906	5.00	5.00		90		6				172,175
Texas		3		42.06	42.06								1,445,103
Port Arthur	Taylors bayou-Sabine pass.		1899	7.13	7.13		183	75	25				803,490
Galveston and Brazos	Oyster bay-Brazos river		1853	29.50	29.50		37½		3				369,698
Morgan Canal and Cut	Galveston bay-Buffalo bayou.		1876	5.43	5.43		180		17				271,975
Iowa:													
Des Moines Rapids	Keokuk-Nashville. Nashville-Montrose.	1	1877	12.00	7.60	4.40	250		5	3	325	80	4,666,889
Canalized rivers		23		1,520.40		1,520.40				138			42,886,978
Arkansas:													
Upper White	8 miles above to 1 mile below Batesville.	1		9.00		9.00			5	2	175	36	684,110
Pennsylvania		3		151.50		151.50				21			9,747,795
Monongahela	Pittsburg-Dunkards creek		1888	89.00		89.00			5.4	6 6	216 182	56	3,954,466
Ohio	Pittsburg-Beaver		1885	36.50		36.50			6	6	600	110	4,668,561
Allegheny	Pittsburg-Natrona		1903	26.00		26.00			6	3	290	56	1,124,768

[1] Ship canal.

[2] State canal.

TABLE 62.—NUMBER, DIMENSIONS, DATE OF CONSTRUCTION, AND COST OF STATE AND CORPORATION CANALS, GOVERNMENT CANALS, AND CANALIZED RIVERS: 1906—Continued.

CLASS, STATE, AND NAME.	Points connected.	Number of canals.	Opened for traffic.	LENGTH.			WIDTH.		Depth (feet).	LOCKS.			Cost of construction and improvement.
				Total (miles).	Canal (miles).	Slack water (miles).	Surface (feet).	Bottom (feet).		Number.	Length (feet).	Width (feet).	
West Virginia		3		179.00		179.00				22			$6,404,344
Great Kanawha	Loup creek shoals-Point Pleasant		1889	90.00		90.00			6	4	300	50	4,165,650
										6	340	55	
Little Kanawha	Parkersburg-Creston		1889	48.00		48.00			4	5	143	23	519,107
Monongahela	State line-Fairmount		1899	41.00		41.00			7	7	182	56	1,719,587
South Carolina:													
Congaree	Gervais street bridge, Columbia-Granby.	1	1906	2.00		2.00			5	1	150	55	221,238
Ohio:													
Muskingum	Zanesville-Marietta	1	1840	75.00		75.00			7	10	160	36	2,121,738
Illinois		3		241.00		241.00				6			3,193,706
Illinois[1]	Lasalle-Grafton		1889	227.00		227.00			7	4	350	75	2,963,706
Wabash	Grand Rapids at Mt. Carmel.		1893	12.00		12.00			3.5	1	214	52	130,000
Galena			1894	2.00		2.00			2	1	307	52	100,000
Wisconsin:													
Fox	Portage city-Green Bay	1	1856	160.40		160.40			5	27	160	35	3,149,295
Kentucky		4		469.50		469.50				22			4,656,564
Kentucky	Carrollton-College Hill		1889	200.00		200.00			5	5	145	38	2,798,922
										6	148	52	
Green and Barren	Mouth Green river-Mammoth Cave.		1889	193.00		193.00			5	7	145	36	661,635
	Mouth Barren river-Bowling Green.			20.00		20.00							
Big Sandy	Louisa-Kavanaugh		1889	27.00		27.00			6	3	190	52	1,091,108
Rough	Mouth-Hartford		1896	29.50		29.50			6	1	123	27	104,899
Tennessee		2		94.50		94.50				14			5,424,363
Cumberland	Nashville above and below.		1889	76.50		76.50			6	3	280	52	2,232,637
Tennessee	Around Muscle shoals		1889	14.50		14.50				9	285	60	3,101,726
	Around Elk river shoals		1889	3.50		3.50			5	2	285	60	
Alabama		2		116.00		116.00				10			3,264,811
Black Warrior	12 miles above Tuscaloosa-79 miles below Tuscaloosa.		1889	91.00		91.00			6.5	7	322	52	2,223,883
Coosa	Greenport, Ala., to 25 miles below.		1888	25.00		25.00			4	3	175	40	1,040,928
Oregon		2		22.50		22.50				3			4,019,014
Yamhill	Mouth-McMinnville		1900	18.00		18.00			5	1	265	40	202,620
Columbia	Around the Cascades		1889	4.50		4.50			8	2	462	92	3,816,394

[1] The Federal Government controls 139 miles and the state of Illinois 88 miles.

CONGRESSIONAL APPROPRIATIONS.

For many years the Federal Government has been expending large sums of money for the survey, improvement, and maintenance of the harbors and waterways of the United States. The first appropriation for this purpose was made in 1802, when Congress authorized the Secretary of the Treasury to expend a sum not exceeding $30,000 on public piers in the Delaware river.

The data on this subject have been compiled from the reports of the Chief of Engineers of the United States Army. The figures are from the compilation of preliminary examinations, surveys, projects, and appropriations prepared in accordance with section 13 of the rivers and harbors act of June 13, 1902, and published in House Document 421, Fifty-seventh Congress, second session, from the report of the chief of engineers for the fiscal year ending June 30, 1906, and the rivers and harbor acts of March 2, 1907. The differences which exist between the figures shown at the census of 1890 and those presented at the present census for the period up to and including that year are due either to the inclusion of some figures in the present report under a different locality from the one shown in 1890, to the diversion of appropriations from the original project, or to apparent errors in the earlier census.

The Congressional appropriations in Table 63 are arranged according to districts corresponding with those followed in presenting the statistics for water transportation.

TABLE 63.—*Congressional appropriations for the survey, improvement, and maintenance of harbors and waterways of the United States, by periods and divisions.*

DIVISION.	Date of earliest appropriation.	APPROPRIATIONS.			
		Total.	Up to and including 1890.	1891 to 1906, inclusive.	March 2, 1907.
Total.....	1802	[1] $552,943,525	$214,039,886	$301,447,546	$37,456,093
Atlantic coast.....	1802	141,162,891	56,448,541	73,821,826	10,892,524
Gulf of Mexico.....	1826	64,202,362	21,065,470	38,027,940	5,198,952
Pacific coast.....	1852	34,061,782	10,248,592	21,204,844	2,608,346
Great Lakes.....	1823	97,791,108	37,522,937	50,980,283	9,287,888
Mississippi valley..	1809	208,484,720	84,211,783	115,457,054	8,815,883
Lake Champlain...	1836	1,347,910	1,133,060	211,750	2,500
General.....	1824	[2] 5,802,752	3,408,903	1,743,849	650,000

[1] Does not include appropriations for the following: California Debris Commission; Permanent International Commission of Congresses of Navigation; International Waterway Commission; improvement of harbors and waterways in insular possessions; prevention of deposits in New York harbor; bridge construction.

[2] Includes general appropriation items for removal of wrecks, examinations, surveys, and contingencies which are not capable of being segregated according to divisions.

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Up to and including 1890 the Congressional appropriations amounted to 38.7 per cent of the total shown in this table. From 1891 to 1906, inclusive, 54.5 per cent of the total was appropriated, while the rivers and harbors act of March 2, 1907, authorized the expenditure of 6.8 per cent. The waterways of the Mississippi valley, including the Red River (of the North), have received 37.7 per cent of all Congressional appropriations for the improvement and maintenance of harbors and waterways; the harbors and streams of the Atlantic coast, 25.5 per cent; those of the Great Lakes, 17.7 per cent; the Gulf of Mexico, including the delta and passes of the Mississippi, 11.6 per cent; the Pacific coast, 6.2 per cent; and Lake Champlain, two-tenths of 1 per cent.

TABLE 64.—ALL VESSELS, BY CLASS,

	CLASS, OCCUPATION, AND DIVISION.	Number of vessels.	TONNAGE. Gross.	TONNAGE. Net.	RIGGED. Screw.	RIGGED. Side wheel.	RIGGED. Stern wheel.	RIGGED. All other.	HORSEPOWER OF ENGINES. Steam.	HORSEPOWER OF ENGINES. Gasoline.	HORSEPOWER OF ENGINES. All other.
1	Aggregate	37,321	12,893,429	11,484,833	7,952	562	1,406	7	3,378,453	73,204	88
2	Steam	9,927	4,659,521	2,918,476	7,952	562	1,406	7	3,378,453	73,204	88
3	Freight and passenger	3,613	3,411,588	2,474,183	2,766	285	564	.....	2,255,295	20,417	.....
4	Tugs and other towing vessels	3,079	261,375	174,373	2,428	27	624	.....	637,950	7,336	.....
5	Ferryboats	530	261,073	187,238	188	228	113	7	264,414	1,245	.....
6	Yachts	2,176	82,275	54,123	2,093	7	76	.....	162,032	39,871	80
7	All other	531	43,210	28,559	477	15	29	.....	58,762	4,335	8
8	Sail	7,131	1,704,277	1,539,513	.....	.....	.....	.....	.....	.....	.....
9	Freight and passenger	5,181	1,672,862	1,510,658	.....	.....	.....	.....	.....	.....	.....
10	Yachts	1,594	24,155	22,176	.....	.....	.....	.....	.....	.....	.....
11	All other	356	7,260	6,679	.....	.....	.....	.....	.....	.....	.....
12	Unrigged	20,263	7,129,631	7,026,844	.....	.....	.....	.....	.....	.....	.....
13	Canal boats	2,237	303,581	292,386	.....	.....	.....	.....	.....	.....	.....
14	All other	18,026	6,826,050	6,734,458	.....	.....	.....	.....	.....	.....	.....
15	Atlantic coast and Gulf of Mexico	20,032	4,851,421	4,186,451	4,858	370	183	2	1,712,382	45,932	64
16	Steam	5,413	1,457,894	972,320	4,858	370	183	2	1,712,382	45,932	64
17	Freight and passenger	1,523	1,045,811	704,560	1,225	194	104	.....	992,963	10,214	.....
18	Tugs and other towing vessels	1,690	148,992	90,021	1,606	11	73	.....	381,051	1,506	.....
19	Ferryboats	270	102,834	113,531	111	156	1	2	158,140	195	.....
20	Yachts	1,577	70,461	45,228	1,573	1	3	.....	142,203	30,706	56
21	All other	253	29,796	18,980	343	8	2	.....	38,025	3,311	8
22	Sail	5,920	1,132,905	1,012,197	.....	.....	.....	.....	.....	.....	.....
23	Freight and passenger	4,227	1,105,901	987,398	.....	.....	.....	.....	.....	.....	.....
24	Yachts	1,358	21,046	19,317	.....	.....	.....	.....	.....	.....	.....
25	All other	335	5,958	5,482	.....	.....	.....	.....	.....	.....	.....
26	Unrigged	8,699	2,260,622	2,201,934	.....	.....	.....	.....	.....	.....	.....
27	Canal boats	663	103,877	101,195	.....	.....	.....	.....	.....	.....	.....
28	All other	8,036	2,156,745	2,100,739	.....	.....	.....	.....	.....	.....	.....
29	Pacific coast (including Alaska)	2,537	977,687	770,376	837	38	191	.....	435,020	10,697	.....
30	Steam	1,066	518,107	349,403	837	38	191	.....	435,020	10,697	.....
31	Freight and passenger	604	451,270	301,336	455	5	144	.....	355,849	6,333	.....
32	Tugs and other towing vessels	313	24,151	15,290	272	2	39	.....	47,764	2,520	.....
33	Ferryboats	47	40,171	31,018	10	31	6	.....	29,079	86	.....
34	Yachts	66	1,065	764	66	.....	.....	.....	810	1,237	.....
35	All other	36	1,450	995	34	.....	2	.....	1,518	521	.....
36	Sail	666	305,283	277,295	.....	.....	.....	.....	.....	.....	.....
37	Freight and passenger	547	302,798	275,060	.....	.....	.....	.....	.....	.....	.....
38	Yachts	104	1,459	1,298	.....	.....	.....	.....	.....	.....	.....
39	All other	15	1,026	937	.....	.....	.....	.....	.....	.....	.....
40	Unrigged	805	154,297	143,678	.....	.....	.....	.....	.....	.....	.....
41	Canal boats	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	All other	805	154,297	143,678	.....	.....	.....	.....	.....	.....	.....
43	Great Lakes and St. Lawrence river	2,990	2,392,863	1,905,176	1,616	51	8	1	976,847	5,700	8
44	Steam	1,676	1,915,786	1,452,228	1,616	51	8	1	976,847	5,700	8
45	Freight and passenger	932	1,842,251	1,406,674	890	37	5	.....	811,004	1,333	.....
46	Tugs and other towing vessels	382	22,663	13,312	376	5	1	.....	89,451	164	.....
47	Ferryboats	48	35,581	21,621	43	3	1	1	49,001	116	.....
48	Yachts	236	6,210	4,280	235	.....	1	.....	12,387	3,923	8
49	All other	78	9,081	6,341	72	6	.....	.....	15,004	164	.....
50	Sail	531	265,571	249,535	.....	.....	.....	.....	.....	.....	.....
51	Freight and passenger	403	263,837	247,891	.....	.....	.....	.....	.....	.....	.....
52	Yachts	122	1,458	1,384	.....	.....	.....	.....	.....	.....	.....
53	All other	6	276	260	.....	.....	.....	.....	.....	.....	.....
54	Unrigged	783	211,506	203,413	.....	.....	.....	.....	.....	.....	.....
55	Canal boats	6	1,134	1,122	.....	.....	.....	.....	.....	.....	.....
56	All other	777	210,372	202,291	.....	.....	.....	.....	.....	.....	.....
57	Mississippi river and its tributaries	9,622	4,411,967	4,379,064	356	85	990	4	227,802	9,167	.....
58	Steam	1,435	146,227	129,227	356	85	990	4	227,802	9,167	.....
59	Freight and passenger	390	55,779	49,997	67	36	287	.....	78,451	2,241	.....
60	Tugs and other towing vessels	619	62,836	53,821	106	7	506	.....	114,696	2,851	.....
61	Ferryboats	166	22,180	20,791	22	35	105	4	27,372	848	.....
62	Yachts	222	3,255	2,923	146	6	70	.....	3,571	2,971	.....
63	All other	38	2,177	1,695	15	1	22	.....	3,712	256	.....
64	Unrigged	8,187	4,265,740	4,249,837	.....	.....	.....	.....	.....	.....	.....
65	Canal boats	2	323	323	.....	.....	.....	.....	.....	.....	.....
66	All other	8,185	4,265,417	4,249,514	.....	.....	.....	.....	.....	.....	.....

[1] The quantity of freight carried on the Great Lakes and St. Lawrence river was obtained from the report of the Bureau of Statistics on the internal commerce of the United States. As this report does not show separately the freight carried on each class of vessels, the total for the United States could not be obtained by classes.

OCCUPATION, AND DIVISION: 1906.

CONSTRUCTION.				Value of vessels.	INCOME.			Number of employees.	Wages.	Number of passengers carried.	Freight carried (net tons).	
Iron.	Steel.	Wood.	Composite.		Freight.	Passengers.	All other.					
531	1,448	35,247	95	$507,973,121	$175,545,361	$43,645,365	$75,663,806	140,929	$71,636,521	306,825,663	[1]177,719,758	1
485	1,189	8,197	56	386,772,727	132,473,492	43,591,987	49,482,310	95,452	50,504,508	306,322,769	.....	2
218	690	2,690	17	286,218,089	119,869,929	33,114,629	8,111,773	61,908	30,579,417	35,302,577	.....	3
169	251	2,649	10	39,062,249	12,555,487	62,117	31,325,724	20,870	12,494,685	281,103	.....	4
64	92	379	1	29,578,380	.....	10,414,106	6,876,967	4,519	3,537,180	330,737,639	.....	5
13	121	2,016	26	24,281,861	.....	135	25,590	5,858	2,291,951	700	.....	6
21	35	463	2	7,632,148	48,076	1,000	3,142,256	2,297	1,601,275	750	.....	7
37	94	6,973	27	56,206,145	31,954,145	35,072	607,973	25,404	10,371,047	24,915	.....	8
34	76	5,069	2	51,415,756	31,953,165	33,272	482,276	22,945	9,641,346	23,475	.....	9
3	18	1,549	24	4,169,253	.....	.....	2,853	1,949	556,777	.....	.....	10
.....	.....	355	1	621,136	980	1,800	212,844	510	172,924	1,440	.....	11
9	165	20,077	12	64,994,249	11,117,724	18,306	25,483,523	20,073	10,760,966	477,979	.....	12
.....	9	2,227	1	2,952,197	2,951,753	.....	386,594	2,772	1,015,591	.....	.....	13
9	156	17,850	11	62,042,052	8,165,971	18,306	25,096,929	17,301	9,745,375	477,979	.....	14
414	734	18,827	57	273,105,915	83,890,161	25,643,332	50,226,431	77,124	38,352,259	292,555,416	65,360,958	15
385	608	4,388	32	193,926,327	57,803,325	25,601,845	32,039,317	45,388	24,433,617	292,292,820	19,340,893	16
156	239	1,123	5	121,136,485	48,644,095	18,185,239	5,418,472	25,177	11,773,117	19,508,104	19,109,272	17
140	183	1,363	4	25,894,551	9,152,820	29,693	21,272,061	11,276	7,528,564	188,046	222,540	18
61	66	143	.....	19,970,466	.....	7,386,913	3,184,621	2,388	2,008,540	272,596,670	.....	19
9	98	1,449	21	21,290,339	.....	.....	16,040	5,098	2,016,936	.....	.....	20
19	22	310	2	5,634,486	6,410	.....	2,148,123	1,459	1,016,460	.....	9,081	21
24	52	5,820	24	37,520,903	19,542,231	24,926	474,858	18,654	6,687,314	22,128	18,637,842	22
22	35	4,168	2	33,213,849	19,541,366	23,126	284,690	16,374	6,016,394	20,688	18,630,901	23
2	17	1,317	22	3,775,743	.....	.....	2,681	1,835	524,374	.....	.....	24
.....	.....	335	.....	531,311	865	1,800	187,487	445	146,546	1,440	6,941	25
5	74	8,619	1	41,658,685	6,544,605	16,561	17,712,256	13,082	7,231,328	240,468	27,382,223	26
.....	.....	663	.....	1,112,475	606,427	.....	337,125	652	281,599	.....	1,104,209	27
5	74	7,956	1	40,546,210	5,938,178	16,561	17,375,131	12,430	6,949,729	240,468	26,278,014	28
57	73	2,404	3	76,622,633	29,340,102	10,424,493	8,755,544	20,142	12,950,399	44,189,971	13,361,293	29
42	63	959	2	60,440,145	20,600,325	10,414,347	6,272,798	14,423	9,330,294	44,187,184	6,685,007	30
37	49	517	1	52,164,977	20,065,562	8,365,559	1,260,954	11,978	7,281,028	4,631,500	6,673,319	31
4	10	299	.....	3,353,927	534,463	10,208	2,761,267	1,548	1,248,085	22,580	11,637	32
.....	2	44	1	4,315,522	.....	2,037,580	2,170,850	759	708,777	39,532,354	.....	33
.....	1	65	.....	294,800	.....	.....	2,500	66	33,271	.....	.....	34
1	1	34	.....	310,919	300	1,000	77,227	72	59,133	750	60	35
12	8	645	1	11,533,171	8,090,122	10,146	199,483	4,481	2,719,571	2,787	3,437,372	36
12	8	527	.....	11,275,586	8,090,007	10,146	177,626	4,401	2,683,528	2,787	3,437,197	37
.....	.....	104	.....	174,119	.....	.....	100	28	11,890	.....	.....	38
.....	.....	14	1	83,475	115	.....	21,757	52	24,153	.....	175	39
3	2	800	.....	4,649,317	649,655	.....	2,283,263	1,238	900,534	.....	3,178,914	40
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
3	2	800	.....	4,649,317	649,655	.....	2,283,263	1,238	900,534	.....	3,178,914	42
33	539	2,391	27	130,805,640	52,076,533	4,866,904	8,331,265	24,916	13,280,716	14,080,146	[2]75,609,649	43
32	457	1,172	15	116,983,812	47,227,424	4,866,904	4,245,899	20,515	11,179,882	14,080,146	.....	44
24	388	510	10	107,897,440	46,832,834	4,408,880	1,271,337	17,279	9,269,490	5,814,639	.....	45
6	33	342	1	2,630,097	357,944	1,168	2,115,009	1,659	1,081,913	1,025	.....	46
.....	14	34	.....	3,429,532	.....	456,856	465,982	656	308,156	8,264,482	.....	47
2	10	220	4	1,673,000	.....	.....	4,422	441	151,055	.....	.....	48
.....	12	66	.....	1,353,743	36,646	.....	389,149	480	309,268	.....	.....	49
1	34	494	2	7,135,271	4,317,542	.....	23,632	2,258	962,542	.....	.....	50
.....	33	370	.....	6,924,071	4,317,542	.....	19,960	2,161	940,174	.....	.....	51
1	1	118	2	204,850	.....	.....	72	84	20,143	.....	.....	52
.....	.....	6	.....	6,350	.....	.....	3,000	13	2,225	.....	.....	53
.....	48	725	10	6,686,557	531,567	.....	4,061,734	2,143	1,138,292	.....	.....	54
.....	.....	6	.....	13,800	6,500	.....	1,290	15	2,801	.....	.....	55
.....	48	719	10	6,672,757	525,067	.....	4,060,444	2,128	1,135,491	.....	.....	56
26	81	9,513	2	22,852,142	7,450,869	2,281,243	7,609,926	15,016	5,692,117	14,122,241	19,531,093	57
25	50	1,358	2	13,196,770	6,480,655	2,279,998	6,649,483	13,973	5,148,581	13,890,850	2,355,386	58
1	9	379	1	3,737,450	4,038,002	1,766,581	130,046	6,746	2,019,292	3,808,850	2,305,867	59
18	22	578	1	6,822,210	2,442,653	14,535	4,953,055	6,109	2,512,108	58,688	49,519	60
3	10	153	.....	1,776,360	.....	498,747	1,054,374	699	413,553	10,022,612	.....	61
2	9	211	.....	563,400	.....	135	1,988	165	59,168	700	.....	62
1	.....	37	.....	297,350	.....	.....	510,020	254	144,550	.....	.....	63
1	31	8,155	.....	9,655,372	970,214	1,245	960,443	1,043	543,536	231,391	17,175,707	64
.....	.....	2	.....	4,100	12,500	.....	.....	8	2,000	.....	23,250	65
1	31	8,153	.....	9,651,272	957,714	1,245	960,443	1,035	541,536	231,391	17,152,457	66

[1] Includes 2,003,453 net tons of bunker coal.

TABLE 64.—ALL VESSELS, BY CLASS,

	CLASS, OCCUPATION, AND DIVISION.	Number of vessels.	TONNAGE.		RIGGED.				HORSEPOWER OF ENGINES.		
			Gross.	Net.	Screw.	Side wheel.	Stern wheel.	All other.	Steam.	Gasoline.	All other.
67	Canals and other inland waters of New York state	1,648	200,152	196,323	138	8	5	.....	16,939	812	16
68	Steam	151	14,127	9,751	138	8	5	.....	16,939	812	16
69	Freight and passenger	79	11,521	7,940	66	8	5	.....	11,442	146	.....
70	Tugs and other towing vessels	38	1,868	1,284	38	.....	.....	.....	3,546	247	.....
71	Ferryboats	2	97	67	2	.....	.....	.....	72	.....	.....
72	Yachts	32	641	460	32	.....	.....	.....	1,879	419	16
73	Sail	13	495	468	.....	.....	.....	.....	.....	.....	.....
74	Freight and passenger	4	326	309	.....	.....	.....	.....	.....	.....	.....
75	Yachts	9	169	159	.....	.....	.....	.....	.....	.....	.....
76	Unrigged	1,484	194,530	186,104	.....	.....	.....	.....	.....	.....	.....
77	Canal boats	1,364	173,388	165,247	.....	.....	.....	.....	.....	.....	.....
78	All other	120	21,142	20,857	.....	.....	.....	.....	.....	.....	.....
79	All other inland waters	492	50,339	47,443	147	10	29	.....	9,463	896	.....
80	Steam	186	7,389	5,547	147	10	29	.....	9,463	896	.....
81	Freight and passenger	87	4,956	3,676	63	5	19	.....	5,586	150	.....
82	Tugs and other towing vessels	37	865	645	30	2	5	.....	1,442	48	.....
83	Ferryboats	3	210	210	.....	3	.....	.....	750	.....	.....
84	Yachts	43	643	468	41	.....	2	.....	1,182	615	.....
85	All other	16	706	548	13	.....	3	.....	503	83	.....
	Sail:										
86	Yachts	1	23	18	.....	.....	.....	.....	.....	.....	.....
87	Unrigged	305	42,936	41,878	.....	.....	.....	.....	.....	.....	.....
88	Canal boats	202	24,859	24,499	.....	.....	.....	.....	.....	.....	.....
89	All other	103	18,077	17,379	.....	.....	.....	.....	.....	.....	.....

OCCUPATION, AND DIVISION: 1906—Continued.

CONSTRUCTION.				Value of vessels.	INCOME.			Number of employees.	Wages.	Number of passengers carried.	Freight carried (net tons).	
Iron.	Steel.	Wood.	Composite.		Freight.	Passengers.	All other.					
1	10	1,634	3	$3,294,221	$2,198,920	$264,397	$318,287	2,472	$920,260	835,052	2,502,891	67
1	9	139	2	1,390,512	118,363	263,897	143,710	590	192,238	828,932	103,998	68
.....	5	74	.....	898,500	104,398	259,037	19,804	407	114,443	804,411	100,655	69
1	3	32	2	222,812	13,965	850	122,766	128	60,795	3,000	3,343	70
.....	.....	2	.....	6,500	.....	4,010	1,140	5	2,154	21,521	.....	71
.....	1	31	.....	262,700	.....	.....	.....	50	14,846	.....	.....	72
.....	.....	13	.....	16,000	4,250	.....	.....	11	1,620	.....	6,968	73
.....	.....	4	.....	2,250	4,250	.....	.....	9	1,250	.....	6,968	74
.....	.....	9	.....	13,750	.....	.....	.....	2	370	.....	.....	75
.....	1	1,482	1	1,887,709	2,076,307	500	174,577	1,871	726,402	6,120	2,391,925	76
.....	.....	1,363	1	1,583,835	2,036,098	.....	13,179	1,582	588,072	.....	2,294,975	77
.....	1	119	.....	303,874	40,209	500	161,398	289	137,730	6,120	96,950	78
.....	11	478	3	1,292,570	588,776	164,996	422,353	1,259	440,770	1,042,837	1,213,874	79
.....	2	181	3	835,161	243,400	164,996	131,103	563	219,896	1,042,837	155,817	80
.....	.....	87	.....	383,237	185,038	129,333	11,160	321	122,137	735,073	141,017	81
.....	.....	35	2	138,652	53,642	5,663	101,566	150	63,220	7,764	5,600	82
.....	.....	3	.....	80,000	.....	30,000	.....	12	6,000	300,000	.....	83
.....	2	40	1	197,622	.....	.....	640	48	16,675	.....	.....	84
.....	.....	16	.....	35,650	4,720	.....	17,737	32	11,864	.....	9,200	85
.....	.....	1	.....	800	.....	.....	.....	.....	.....	.....	.....	86
.....	9	296	.....	456,609	345,376	.....	291,250	696	220,874	.....	1,058,057	87
.....	9	193	.....	237,987	290,228	.....	35,000	515	140,519	.....	733,189	88
.....	.....	103	.....	218,622	55,148	.....	256,250	181	80,355	.....	324,868	89

TABLE 65.—ALL VESSELS, BY CLASS, OWNERSHIP, AND DIVISION: 1906.

CLASS, OWNERSHIP, AND DIVISION.	Number of vessels.	Gross tonnage.	CONSTRUCTION.				Value of vessels.	Gross income.	Number of employees.	Wages.	Number of passengers carried.
			Iron.	Steel.	Wood.	Composite.					
Aggregate	37,321	12,893,429	531	1,448	35,247	95	$507,973,121	$294,854,532	140,929	$71,636,521	366,825,603
Individual	12,944	1,492,818	63	189	12,634	58	65,833,525	32,307,887	33,362	13,426,087	9,243,750
Firm	4,169	929,311	33	47	4,085	4	28,807,734	24,352,990	15,065	7,346,355	4,159,376
Incorporated company	19,729	10,375,681	411	1,168	18,121	29	402,419,557	233,480,197	89,481	48,290,500	332,042,567
Miscellaneous	479	125,619	24	44	407	4	10,912,305	4,713,458	3,021	2,573,579	21,379,970
Steam	9,927	4,059,521	485	1,189	8,197	56	386,772,727	225,547,789	95,452	50,504,508	366,322,769
Individual	4,359	316,219	54	169	4,104	32	40,280,220	14,735,851	16,909	7,479,091	9,078,347
Firm	1,141	145,326	28	40	1,072	1	9,990,927	10,468,009	6,235	3,393,402	4,136,946
Incorporated company	4,224	3,555,040	380	943	2,881	20	328,906,262	198,804,054	70,831	38,177,483	331,727,506
Miscellaneous	203	42,936	23	37	140	3	7,595,318	1,539,875	1,477	1,454,532	21,379,970
Sail	7,131	1,704,277	37	94	6,973	27	56,206,145	32,687,190	25,404	10,371,047	24,915
Individual	4,772	483,859	7	19	4,723	23	17,854,084	10,868,065	12,285	4,187,230	22,633
Firm	1,403	435,756	5	2	1,393	3	12,843,869	9,289,172	6,520	2,855,740	2,049
Incorporated company	857	729,784	24	66	767	.....	23,493,652	11,446,101	5,825	2,989,675	233
Miscellaneous	99	54,878	1	7	90	1	2,014,540	1,083,852	774	338,402	.....
Unrigged	20,263	7,129,631	9	165	20,077	12	64,994,249	36,619,553	20,073	10,760,966	477,979
Individual	3,813	662,740	2	1	3,807	3	7,699,221	6,703,971	4,168	1,759,766	142,770
Firm	1,625	348,229	.....	5	1,620	.....	5,972,938	4,595,809	2,310	1,097,213	20,381
Incorporated company	14,648	6,090,857	7	159	14,473	9	50,019,643	23,230,042	12,825	7,123,342	314,828
Miscellaneous	177	27,805	.....	.....	177	.....	1,302,447	2,089,731	770	780,645	.....
Atlantic coast and Gulf of Mexico	20,032	4,851,421	414	734	18,827	57	273,105,915	159,759,924	77,124	38,352,259	292,555,416
Individual	8,517	844,064	45	139	8,288	45	45,457,935	16,762,779	21,620	8,185,625	4,089,186
Firm	2,849	666,005	29	22	2,796	2	19,636,772	15,844,013	9,585	4,549,281	1,986,229
Incorporated company	8,341	3,246,215	317	540	7,475	9	199,516,774	123,137,403	43,740	23,642,205	266,278,832
Miscellaneous	325	95,137	23	33	268	1	8,494,434	4,015,729	2,179	1,975,148	20,201,169
Steam	5,413	1,457,804	385	608	4,388	32	193,926,327	115,444,487	45,388	24,433,617	292,292,820
Individual	2,625	130,963	37	121	2,446	21	27,444,680	5,933,069	9,732	4,305,969	3,945,453
Firm	580	48,015	25	21	533	1	4,588,052	5,453,014	2,726	1,335,100	1,984,184
Incorporated company	2,072	1,244,283	301	440	1,322	9	155,819,420	102,728,451	31,919	17,375,127	266,162,014
Miscellaneous	136	34,633	22	26	87	1	6,074,175	1,329,953	1,011	1,089,361	20,201,169
Sail	5,920	1,132,905	24	52	5,820	24	37,520,903	20,042,015	18,654	6,687,314	22,128
Individual	4,091	338,536	6	18	4,044	23	13,245,424	6,999,030	9,775	2,888,624	20,083
Firm	1,189	349,135	4	1	1,183	1	10,437,943	7,071,440	5,258	2,135,143	2,045
Incorporated company	558	390,761	13	26	519	.....	12,110,296	5,079,132	2,975	1,397,248	.....
Miscellaneous	82	45,473	1	7	74	.....	1,727,240	892,413	646	266,299	.....
Unrigged	8,699	2,260,622	5	74	8,619	1	41,658,685	24,273,422	13,082	7,231,328	240,468
Individual	1,801	374,565	2	.....	1,798	1	4,767,831	3,830,680	2,113	991,032	123,650
Firm	1,080	268,855	.....	.....	1,080	.....	4,610,777	3,319,559	1,601	750,978	.....
Incorporated company	5,711	1,602,171	3	74	5,634	.....	31,587,058	15,329,820	8,846	4,860,830	116,818
Miscellaneous	107	15,031	.....	.....	107	.....	693,019	1,793,363	522	619,488	.....
Pacific coast (including Alaska)	2,537	977,687	57	73	2,404	3	76,622,633	48,520,139	20,142	12,950,399	44,189,971
Individual	806	119,565	1	2	803	.....	6,585,265	4,923,697	3,022	1,876,325	917,552
Firm	275	73,131	2	2	271	.....	3,678,325	2,791,353	1,504	1,046,443	545,012
Incorporated company	1,404	770,404	54	69	1,279	2	65,235,015	40,297,220	15,233	9,765,577	41,571,407
Miscellaneous	52	14,587	.....	.....	51	1	1,124,028	507,869	383	262,054	1,156,000
Steam	1,066	518,107	42	63	959	2	60,440,145	37,287,470	14,423	9,330,294	44,187,184
Individual	320	23,015	1	2	317	.....	2,912,260	2,014,337	1,236	822,125	915,002
Firm	121	14,084	1	1	119	.....	1,599,400	1,304,923	698	510,006	545,008
Incorporated company	609	477,815	40	60	507	2	55,560,485	33,844,478	12,377	7,911,038	41,571,174
Miscellaneous	16	3,193	.....	.....	16	.....	368,000	123,732	112	87,125	1,156,000
Sail	666	305,283	12	8	645	1	11,533,171	8,299,751	4,481	2,719,571	2,787
Individual	366	85,227	.....	.....	366	.....	3,455,600	2,660,275	1,636	964,470	2,550
Firm	99	51,721	1	1	97	.....	1,934,565	1,333,530	748	496,254	4
Incorporated company	187	159,756	11	7	169	.....	5,866,206	4,134,060	1,978	1,192,927	233
Miscellaneous	14	8,579	.....	.....	13	1	276,800	171,886	119	65,920	.....
Unrigged	805	154,297	3	2	800	.....	4,649,317	2,932,918	1,238	900,534	.....
Individual	120	11,323	.....	.....	120	.....	217,405	249,085	150	89,730	.....
Firm	55	7,326	.....	.....	55	.....	144,360	152,900	58	40,183	.....
Incorporated company	608	132,833	3	2	603	.....	3,808,324	2,318,682	878	661,612	.....
Miscellaneous	22	2,815	.....	.....	22	.....	479,228	212,251	152	109,009	.....
Great Lakes and St. Lawrence river	2,990	2,392,863	33	539	2,391	27	130,805,640	65,274,702	24,916	13,280,716	14,080,146
Individual	975	204,175	12	32	922	9	8,355,470	5,170,969	3,572	1,642,942	1,333,019
Firm	429	132,836	2	15	410	2	4,025,536	4,052,492	2,386	1,131,976	592,956
Incorporated company	1,536	2,044,131	19	481	1,020	16	117,310,941	56,002,405	18,672	10,238,974	12,141,171
Miscellaneous	50	11,721	.....	11	39	.....	1,113,693	48,836	286	266,824	13,000
Steam	1,676	1,915,786	32	457	1,172	15	116,983,812	56,340,227	20,515	11,179,882	14,080,146
Individual	536	126,160	11	30	487	8	6,664,550	3,608,513	2,503	1,216,624	1,333,019
Firm	207	71,009	2	11	194	.....	2,813,500	2,446,025	1,534	737,711	592,956
Incorporated company	905	1,714,669	19	405	474	7	106,473,369	50,256,556	16,241	8,992,737	12,141,171
Miscellaneous	28	3,948	.....	11	17	.....	1,032,393	29,133	237	232,810	13,000
Sail	531	265,571	1	34	494	2	7,135,271	4,341,174	2,258	962,542	.....
Individual	301	59,578	1	1	299	.....	1,136,260	1,204,510	863	332,516	.....
Firm	115	34,900	.....	.....	113	2	471,361	884,202	514	224,343	.....
Incorporated company	112	170,267	.....	33	79	.....	5,517,150	2,232,909	872	399,500	.....
Miscellaneous	3	826	.....	.....	3	.....	10,500	19,553	9	6,183	.....
Unrigged	783	211,506	.....	48	725	10	6,686,557	4,593,301	2,143	1,138,292	.....
Individual	138	18,437	.....	1	136	1	554,660	357,946	206	93,802	.....
Firm	107	26,927	.....	4	103	.....	740,675	722,265	338	169,922	.....
Incorporated company	519	159,195	.....	43	467	9	5,320,422	3,512,940	1,559	846,737	.....
Miscellaneous	19	6,947	.....	.....	19	.....	70,800	150	40	27,831	.....

TABLE 65.—ALL VESSELS, BY CLASS, OWNERSHIP, AND DIVISION: 1906—Continued.

CLASS, OWNERSHIP, AND DIVISION.	Number of vessels.	Gross tonnage.	CONSTRUCTION.				Value of vessels.	Gross income.	Number of employees.	Wages.	Number of passengers carried.
			Iron.	Steel.	Wood.	Composite.					
Mississippi river and its tributaries	9,622	4,411,967	26	81	9,513	2	$22,852,142	$17,342,038	15,016	$5,692,117	14,122,241
Individual	1,318	134,655	5	13	1,300	.....	3,114,755	3,166,478	3,132	1,038,563	2,593,811
Firm	533	49,346	.....	8	525	.....	1,341,901	1,527,247	1,403	564,360	974,054
Incorporated company	7,752	4,226,600	20	60	7,670	2	18,292,186	12,598,664	10,403	4,059,646	10,549,328
Miscellaneous	19	1,366	1	.....	18	.....	103,300	49,649	78	29,548	5,048
Steam	1,435	146,227	25	50	1,358	2	13,196,770	15,410,136	13,973	5,148,581	13,890,850
Individual	687	27,524	5	13	669	.....	2,394,680	2,852,034	2,942	962,389	2,580,811
Firm	211	11,360	.....	7	204	.....	935,875	1,217,607	1,210	465,025	953,673
Incorporated company	524	186,575	19	30	473	2	9,783,915	11,296,846	9,743	3,691,619	10,351,318
Miscellaneous	13	768	1	.....	12	.....	82,300	43,649	78	29,548	5,048
Unrigged	8,187	4,265,740	1	31	8,155	.....	9,655,372	1,931,902	1,043	543,536	231,391
Individual	631	107,131	.....	.....	631	.....	720,075	314,444	190	76,174	13,000
Firm	322	37,986	.....	1	321	.....	406,026	309,640	193	99,335	20,381
Incorporated company	7,228	4,120,025	1	30	7,197	.....	8,508,271	1,301,818	660	368,027	198,010
Miscellaneous	6	598	.....	.....	6	.....	21,000	6,000	.....	.....	.....
Canals and other inland waters of New York state	1,648	209,152	1	10	1,634	3	3,294,221	2,781,604	2,472	920,260	835,052
Individual	1,152	143,428	.....	1	1,150	1	1,755,585	1,828,375	1,617	535,678	160,373
Firm	44	4,554	.....	.....	44	.....	54,600	49,936	76	18,671	27,886
Incorporated company	429	59,168	1	9	419	.....	1,428,836	877,826	727	345,573	646,793
Miscellaneous	23	2,002	.....	.....	21	2	55,200	25,467	52	20,338	.....
Steam	151	14,127	1	9	139	2	1,390,512	525,970	590	192,238	828,932
Individual	89	5,056	.....	1	88	.....	467,400	154,141	263	89,472	154,253
Firm	7	182	.....	.....	7	.....	14,000	10,527	14	2,931	27,886
Incorporated company	49	8,572	1	8	40	.....	881,112	359,302	291	91,622	646,793
Miscellaneous	6	317	.....	.....	4	2	28,000	2,000	22	8,213	.....
Sail:											
Individual	13	495	.....	.....	13	.....	16,000	4,250	11	1,620	.....
Unrigged	1,484	194,530	.....	1	1,482	1	1,887,709	2,251,384	1,871	726,402	6,120
Individual	1,050	137,877	.....	.....	1,049	1	1,272,185	1,669,984	1,343	444,586	6,120
Firm	37	4,372	.....	.....	37	.....	40,600	39,409	62	15,740	.....
Incorporated company	380	50,596	.....	1	379	.....	547,724	518,524	436	253,951	.....
Miscellaneous	17	1,685	.....	.....	17	.....	27,200	23,467	30	12,125	.....
All other inland waters	492	50,330	.....	11	478	3	1,292,570	1,176,125	1,259	440,770	1,042,837
Individual	176	16,931	.....	2	171	3	504,515	455,589	399	146,954	149,809
Firm	39	3,439	.....	.....	39	.....	70,600	87,949	111	35,624	33,239
Incorporated company	267	29,163	.....	9	258	.....	635,805	566,679	706	238,525	855,036
Miscellaneous	10	806	.....	.....	10	.....	21,650	65,908	43	19,667	4,753
Steam	186	7,380	.....	2	181	3	835,161	539,499	563	219,896	1,042,837
Individual	102	3,501	.....	2	97	3	396,650	173,757	233	82,512	149,809
Firm	15	676	.....	.....	15	.....	40,100	35,913	53	14,569	33,239
Incorporated company	65	3,126	.....	.....	65	.....	387,961	318,421	260	115,340	855,036
Miscellaneous	4	77	.....	.....	4	.....	10,450	11,408	17	7,475	4,753
Sail:											
Individual	1	23	.....	.....	1	.....	800	.....	.....	.....	.....
Unrigged	305	42,936	.....	9	296	.....	456,609	636,626	696	220,874	.....
Individual	73	13,407	.....	.....	73	.....	167,065	281,832	166	64,442	.....
Firm	24	2,763	.....	.....	24	.....	30,500	52,036	58	21,055	.....
Incorporated company	202	26,037	.....	9	193	.....	247,844	248,258	446	123,185	.....
Miscellaneous	6	729	.....	.....	6	.....	11,200	54,500	26	12,192	.....